THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

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Progress of Agriculture.

Suggestions in Relation to Improvements.—No. VI.

HAVING noticed some of the principal improvements which have been achieved in agriculture, we would now call attention to several subjects to which efforts for further improvements might be profitably directed.

1. The greatest defects in American agriculture at the present time, arise chiefly from *carelessness and waste*. The disregard of order, system and economy, is the bane of our farming. It is the occasion of constant and immense loss in many ways. The most striking example of this, perhaps, is the great negligence in regard to the saving of manures. Notwithstanding the frequency with which this subject has been brought to the attention of farmers, there is scarcely a neighborhood in which many instances of the neglect and loss alluded to, are not seen. On most farms there is nearly a total loss of the urine of the stock, during the time it is kept at the barn; and even the other portion of the excrement is often so much exposed that one-half its value, probably, is lost. It is often washed into the highway, and is seen in the coloring of the water of brooks, which carry off the soluble portions. It would not, probably, be an over estimate of this loss, to say that with many farmers, it is more than equal to the money they pay in taxes.

This loss might be almost wholly prevented, and with but little comparative expense. The first thing towards this would be to use plenty of substances to absorb all the liquids of the stables and yards. Cellars under barns and stables, where the shape of the ground would render it convenient to make them, would be preferable, as receptacles for manure, to any other plan. Where cellars are not made, there might be excavations under the stalls, and being filled with muck, peat-charcoal, or charcoal dust, the urine would be retained in a form convenient for application to the soil. Yards should be so formed by means of embankments, if necessary, that there will be no soak or wash from them. If the roofs of the buildings throw more water on the manure than is sufficient to keep it moist, (not wet) gutters and spouts should be put up to lead the water off.

The practice of having plenty of water in barn-yards, should be more general. In many instances animals sustain much injury from the want of this requisite, and much valuable manure is lost from the same cause.

2. More attention should be given to neatness in farm management, especially in preventing the growth of pernicious plants, and in keeping fences and buildings in repair. There is a general carelessness—in many instances a downright slovenliness, evinced in this respect, which detracts much from the beauty of the country, and at the same time greatly depreciates the value of the land. It is astonishing that this matter should be so little regarded. It is not uncommon to find the door-yards of farm-houses grown up to thistles, burdocks, &c. Sometimes a half acre or more of the best land the farm affords, is thus appropriated as a seed-bed for the propagation of these vile things, and from which they are scattered round the country. Even the spot misnamed "the garden," frequently has a wide border, which, perhaps, amounts to one-half its area, wholly filled and occupied with weeds and bushes.

The injury from these foul plants is much greater than is generally supposed. They increase the expense of cultivation, lessen the yield, and debase the quality of crops. When the soil is full of weeds, they often get the start of crops, and smother them down. In broadcast crops, it is hardly practicable to eradicate weeds, and they run to seed—the seed mingles with the grain and depreciates its value in market. Much of the choicest land in the country has been greatly deteriorated in value, by this careless cultivation and the consequent growth of weeds. In some of the western states, this has been strikingly the case.

It should be a standing rule with farmers to prevent weeds from seeding. This will at least prevent their increase, except with those species which spread by the root. In addition to this, the thorough extermination of all noxious plants should be followed up at every convenient opportunity. These efforts should not be confined to the limits of the farm; but the sides of highways, rail-roads, and all public thoroughfares should be guarded with the same attention. There is a law in this state requiring thistles, which grow on the banks of the canals, on the sides of railroads, &c. to be mown twice a year, but the work is often neglected, or done in so poor a manner, that the object sought is not attained. They should be cut *close to the ground*, while in blossom, but before any seed is formed.

3. We need a more appropriate division of farms, as regards wood-land and cultivated fields, and a better adaptation of the various portions to those purposes most consistent with the nature of the soil, and general appearance of the country. This is a matter which receives but little attention from farmers. An indiscriminate destruction of forest trees has been made in many instances, when the land was first occupied, and a new

growth has not been allowed to take its place. The consequence is, that much land which would have produced trees, and nothing but trees—as the rocky points of hills, barren knolls, the sides of gullies—have been left naked, and the soil, having nothing to hold its particles together, has been washed to sterility. Another injury which has ensued from this destruction of trees, is the greater exposure of many situations to the force of winds. In this climate, subject as it is to extreme heat and cold, trees are important as a means of shelter. A border of trees, even of not more than a rod in width, on the north and west sides of fields, will produce a very favorable effect in breaking off the cold blasts. This is particularly required on hill and mountain pastures, and also in open champaign districts, like the western prairies. There should also be trees in proper places for shade, as animals exposed to the full blaze of our intense summer sun, suffer greatly from its effects.

All steep hill-sides, gorges and gullies, should be left in trees, or planted with them. These spots, left bald and unproductive, give an unpleasant aspect to the landscape, but clothed with trees, they impart a picturesque beauty and interest to the scenery. It would not be difficult to cover these places with trees, by planting the sugar-maple, elm, white-ash, oak, chestnut, and some evergreens, as the cedar, hemlock, and pine, to fill up the plantation. All these would become valuable, either as timber or for fuel. It would be necessary to keep stock away from them, till they have attained such size as not to be injured by browsing.

4. Drainage is a subject which is beginning to receive, as it deserves, much attention. We believe it will prove here, as it has been in Europe, the most important means of improving the soil, which has been adopted within the last fifty years. In the northern portion of our country, there is much land which would be rendered vastly more productive by under-drainage. Judgment and experience are necessary to the proper location and construction of drains; but there is hardly a farm that does not contain some land on which they might be laid down to advantage. The whole subject, however, has within a few years, been so much discussed through the medium of this periodical, that no more need be said of it at present.

5. There are many questions in agriculture, the settlement of which would be productive of great benefit. The best situation for instituting and carrying on proper experiments for the solution of these questions, would be an Experimental Farm, in connection with an Agricultural School. The want of such an institution forms a great barrier to making these experiments. Few individuals can afford the money and time which would be required to carry them on, and at the same time, they naturally consider the answers involved in these questions, as of public, rather than private benefit. It is necessary and proper, therefore, that some way should be devised for these experiments to be made, without an injurious sacrifice of individual interests. In the absence of such an institution as has been mentioned, something might be done through the efforts of agricultural societies, and we think a portion of their funds could not be better expended than in the employment of intelligent and trustworthy persons to conduct experiments, under the supervision of a competent board of directors.

We need experiments in feeding stock with various crops, in order to ascertain their relative value, and which would afford for this purpose, the greatest return per acre, or for the expense of production. In relation to manures, also, a course of systematic trials to show their relative effect and value for different crops, and on different soils, would be highly useful; and it would be exceedingly interesting, as well as practically useful, to compare the results of these experiments, as far as practicable, with the results obtained by chemical analysis. To test the different breeds of horses, cattle, sheep, swine and poultry, in regard to their value for the different purposes to which they are applied, is another important object, in reference to which thorough experiments should be made.

On all these subjects light is much needed. What farmer, for instance, knows what crop will afford him the most profit for the purpose of making beef, mutton, pork, or butter and cheese? Who can tell the relative value of Indian corn and the other grains, or of carrots, turneps, or other roots, for either of these purposes? We are equally as much in the dark in reference to the merits of the different breeds of domestic animals. If, for example, the question is asked—What is the actual difference in the Short-horn, Hereford, Devon, Ayrshire, and common cattle, for the dairy, or for beef, who can answer? It may be said that these breeds are adapted to different locations, which is true, but there are circumstances in which they may meet on an equal footing, and though there is, probably, a difference in their capacities, it is desirable to know what this difference would amount to in pounds of meat, butter and cheese, and dollars and cents.

6. The improvement of domestic animals, by encouraging a class of skillful and systematic breeders, deserves attention. The improvement of animals by the art of breeding, is one of the most important branches of husbandry, and yet it is but very little understood in this country. It necessarily follows that we have made slow progress in this department, and th, although we have had frequent importations of stock from abroad, producing, in many instances, a marked improvement in their immediate progeny, it has, with few exceptions, been necessary to continue the importations, in order to keep up the character of our stock. The truth is, our people have given so little attention to the subject, or have examined it under such false impressions, that it is difficult to find a man who is really capable of selecting a proper animal to breed from, and much more difficult is it to find one who is capable of breeding a herd or flock, without degeneracy, for several generations.

The successful breeding of animals for particular purposes, requires a critical judgment and skill, which can only be obtained by a long course of the closest observation, and a habit of comparing animals, united with a natural taste for the subject, and a determination to understand its principles. Hence the number of real *improvers* in this line has been very small. It is an easy matter to improve a stock, so long as the breeder can resort to other stocks of a quality superior to his own, but when deprived of this advantage, a difficulty presents itself which few have the sagacity and intelligence to overcome. This is not, perhaps, the view generally ta-

ken of this matter. Many persons seem to think themselves fully qualified to set up as breeders of fine stock; but a few years experience generally brings disappointment, and convinces them that more knowledge and skill are required in the business, than they had supposed.

The usefulness of improved stock, in increasing the profits of the farmer, is too obvious to require argument here. It is, therefore, a question for consideration,—What are the best means of providing suitable animals of the various species and breeds, for popagation? We are clearly of the opinion that this can be best done by encouraging a class of men as breeders, who shall make this branch of business their constant care and study. This is the mode which has, chiefly, produced the improvement of the live stock of Great Britain, and we are confident as to its expediency here. It is no aid to actual improvement for every man who keeps stock to attempt to breed his own male animals. In fact, it is this attempt which has been one of the main causes of failure. The same error formerly prevailed in Britain, but has been generally corrected and a better course adopted.

In illustration of this subject, we will refer to a paper by Mr. Wilson, in the Transactions of the Highland Agricultural Society, on "Rearing Cattle with a view to Early Maturity." It is remarked:

"It may be well to notice that it is in general highly inexpedient for the beef-grower—the farmer who depends on his regular cast of fat cattle—to attempt breeding his own bull. It is only a few individuals in any district, who have the taste and skill requisite for this difficult department of the business, not to mention the large capital which must necessarily be invested in it. Made wise on this point, the farmer of the Border, purchases from some breeder of established reputation, a good yearling bull, which he uses two or three seasons, and then replaces by another in like manner."

It will not be advisable for one breeder to attempt to rear all kinds of stock. In general, it will be found the best course for each to confine himself to one breed only, of each of the different kinds—as horses, cattle, &c. This will guard against the liability of chance mixtures, which may sometimes occur where several breeds are kept on the same farm. Purchasers would prefer taking their breeding animals from herds or flocks where there was the greatest certainty of the blood being what it was represented to be, and where no circumstances existed which would give rise to any doubts on this point.

It is desirable that there should be some point in each district, where the breed or breeds which are there required, could be obtained in their greatest perfection. A dairy farmer might raise his own cows, or if he did not, would be induced to purchase of such breeders as could supply him with him those best adapted to his purpose. But a farmer whose cows were of the best breed for the dairy, would naturally prefer obtaining his working oxen, should he want any, from a stock which had been selected and bred with reference to a capacity for labor. The same rule would apply to stock for fattening. It would be a great point gained, if herds could be established where animals should be bred especially for these different objects. At present, there are but few herds from which the purchaser can obtain animals of the particular character he wants. Hence the necessity for the establishment of breeding stations, where may be obtained the best horses for travel and for draft, the best cattle for beef, work, and the dairy, the best sheep for mutton and for the production of various kinds of wool, the best swine, &c.

It is not to be expected that the benefits of the system here proposed, will be fully realized until it has been in operation for a considerable length of time. As has been observed, the science of breeding has yet to be learned by most of our farmers, and mistakes, more or less, will be unavoidable; but the observing and intelligent, will profit by the errors of themselves and others, and those who perseveringly apply to the business the greatest amount of *practical skill*, will ultimately meet with proportionate success and reward.

Suggestions for Experiments

TO DETERMINE THE MODE OF

Action and Value of Gypsum as a Manure.

Editors of the Cultivator.—Few substances used as manure have produced more widely different results than gypsum, or have given rise to more numerous and discordant attempts to explain their mode of action.

In some districts, farmers have derived little or no benefit from its use; in others it has proved highly beneficial to a certain class of plants—while in others, again, it seems to have been applied to almost all crops with advantage. If it is a difficult matter to arrive at any satisfactory general conclusion regarding the action of gypsum on plants, from a study of facts recorded by practical men, the inquiry becomes much more perplexing when we consider the explanations which have been advanced by chemists and o hers, with a view to account for the eccentricity of the action of this manure. Some have supposed that gypsum does not, of itself, afford food to plants, but that its fertilising power depends upon the influence which it is said to exercise on other substances; that it merely improves the physical properties of the soil—that it hastens the decay of organic matter—that it fixes ammonia which would otherwise be dissipated in the air. Others contend, that some one of its constituents is the sole active agent,—water, sulphur and lime, having each their advocates. While by others, gypsum is considered to be an essential constituent of some plants, without which they cannot grow in a healthy condition.

The experiments and observations which have hitherto been made, do not seem to have been sufficiently extensive or accurate, to enable any one to point out with certainty, the means by which gypsum contributes to the growth of different plants, nor to which plants, on which soils, or in what manner, it can be applied with the greatest advantage. Our knowledge on these important points being so unsatisfactory, I have thought it may be well to invite the attention of the readers of the Cultivator to the subject, in order that they may see that the inquiry is an interesting one, and likely to afford useful results, and that it stands much in need of, and well deserves a more extended chemical and practical investigation.

The least plausible of the hypothesis mentioned, seem to be those which ascribe the action of gypsum to its

supposed power of decomposing organic matter, altering the physical constitution of the soil, or of affording water to plants.

Sir Humphry Davy and others, have proved that the decay of animal substances was not hastened by being mixed with gypsum; if it had possessed this property, and by this alone it was useful to plants, then it should prove most efficient on soils rich in organic matter, and add to the luxuriance of *all* plants.

The quantity usually applied, from two cwts. to four cwts. per acre, is obviously too small to exercise much influence on the physical constitution of a soil; besides its beneficial effects have been observed on soils varying in texture from sand to clay.

Vegetable mould, clay, and other substances in the soil, are known to have a much greater capacity for absorbing moisture from the air, than gypsum. In two cwts. unburned, about 47 lbs only of water, are added to the soil, and supposing roots had the power of abstracting the water of combination, and that this could be continually replaced, then if the supply of moisture afforded by gypsum was the chief cause of its influence, its effects should be most observable on the driest soils, and it should be of great benefit to all crops on most soils in dry seasons; but the facts at present known do not warrant any such conclusion. A crop has been doubled by the use of gypsum, on the western coast of Scotland, where much rain falls, as well as on the sands of Holkham, in Norfolk, where the climate is comparatively dry.

Liebig has stated that the influence of gypsum on the growth of grasses, depends on its fixing in the soil the ammonia of the atmosphere. There can be no question that gypsum has the power of fixing ammonia, or that the sulphate of ammonia produced by the mutual decomposition of gypsum and carbonate of ammonia, is readily soluble in water, and a valuable food for plants. Before, however, it can be admitted that this is the sole, or even the chief cause of its influence, it should be proved to have the most decided effect on soils which contain least of other matters capable of combining with, or condensing ammonia, and that on these soils, a dressing of charcoal, or chloride of calcium, or substances containing ammonia, are equally efficient.

Sir Robert Kane considered that the peculiar action of gypsum consists in its supplying lime for the rapid growth of clover, and other leguminous plants, which its moderate solubility in water enabled it to effect better than any other compound of that earth. It is probable that gypsum may, in some cases, act chiefly by means of its lime, when sulphuric acid and an abundance of other matters required for the growth of plants, excepting lime, are present in the soil. But it seems somewhat paradoxical, that the rapidity of the growth of a plant should be in proportion to the slowness of the supply of one of its chief constituents. If lime, in the state in which it is usually applied, were so easily soluble as to be washed out of the land, or beyond the reach of the roots, before the plants had completed their growth, then a compound affording a more lasting, though limited supply of lime, might in the end prove more useful; but a dressing of ordinary lime is seen not only to carry through one crop, but to exercise an influence on crops for years after; and if the action of gypsum depended solely upon its lime, then it should follow that it would be an useless application to calcareous soils, where this material already abounds. The reverse of this, however, seems to be the case, for some of the most decided instances of the beneficial action of gypsum, have been observed in chalk. In "British Husbandry," it is said "experience has proved gypsum to be beneficial when laid upon limestone soils, or upon land which had been dressed with chalk or lime. It is used extensively for clover, sainfoin, &c., on the chalk formations in Kent, Hampshire and Berkshire. At Tanstall, near Sittingbourne, in Kent, situated, I believe, upon the chalk, a portion of clover was dressed with gypsum, at the rate of four cwts. per acre, and the aggregate produce was three times as great as the other portion of the field, to which no gypsum was applied. It can hardly be conceded, then, that the lime supplied by gypsum is the sole or main cause of its fertilizing power.

Sir Humphry Davy concluded that gypsum is an essential constituent of some plants, as it was always most beneficial to those which afforded it on analysis, and he considered that it might naturally exist in some soils in quantities sufficient for the wants of plants; consequently a special application of gypsum to these soils, would be attended with little or no benefit. Other writers, as Russel, Johnson, &c., coincide in the opinion of Sir Humphry Davy that the benefit to be derived from an application of gypsum, will not only depend upon the kind of plant, but on the abundance or scarcity of gypsum or other sulphates in the soil. That sulphur contributes to the growth of plants, seems to be proved by the fact that sulphuric acid alone has in many instances proved beneficial. Vegetation has been observed to be luxuriant in the neighborhood of sulphureous springs. Natural or artificial waters which have a sulphurcous taste, are said to give birth to a peculiarly luxuriant vegetation when they are employed in the irrigation of meadows. (Johnston.) In France sulphuric acid has proved to be a good manure when poured upon land after the removal of the crop. (Liebig.) Sulphur has been applied with advantage in Germany, as a top-dressing for clover and other crops, to which gypsum, in that country, is usually applied. (Cuthbert Johnson.) In experiments made on two fields by a Scotch farmer, sulphuric acid afforded a greater increase of hay than gypsum and an excellent crop of turneps has been raised by means of sulphuric acid in Fifeshire.

Again, the experience of farmers generally favors the conclusion that gypsum acts most energetically on sain foin, clover, lucerne, and turneps, all of which contain a considerable proportion of sulphate of lime. Thus at Holkham, an application of 4 bushels per acre on sainfoin layers, is said to have doubled the crop. On a clayey soil in Hampshire, 2¼ cwts. per acre were strewn on two year old sainfoin; the extra produce of hay at the first cutting was one ton per acre; in October the gypsumed part afforded 1¼ ton of hay, yet there was scarcely any on the rest of the land. In the next year the former was twice mown, while in the latter, it is said there was nothing to mow. On clover the influence of gypsum seems in some instances to be very decided. In an experiment made at Highstead, the simple soil produced one ton of clover hay and 20 lbs. of seed per acre; a portion of the same

soil to which gypsum, at the rate of five bushels per acre had been applied, yielded a crop equivalent to three tons of hay and 105 lbs. of seed per acre. In British Husbandry, gypsum is said to have increased crops of clover and lucerne, on some soils in Kent, at least three fold. In Ayrshire, part of a crop of turneps was nearly doubled by the use of gypsum. In the same neighborhood, no perceptible effect was produced on turneps by 2 cwts. of gypsum; but the entire crop was excellent—a circumstance which should not be lost sight of when experimenting with special manures. There is a limit to the growth of plants; if a soil is already so rich in vegetable food, as to be able to produce a great crop, a dressing of any manure to a soil in such a state, would be useless.

There are also many observations on record which seem to show that the growth of plants in some instances was checked owing to the want of gypsum in the soil, and that it acts much more powerfully on some plants than on others. Thus, if land is clover-sick; if the young plants spring up and die away as summer advances, this is considered by many to be an indication of the absence of gypsum. A crop of sainfoin which began to decline in the 4th year, became as productive as before by an application of gypsum. (Brit. Hus.) In the 5th year after sowing lucerne, the natural grasses appeared to be gaining ground, when a dressing of gypsum produced such a smothering crop that the grass could no longer make head, till after the third cutting. In another instance, an old grass field became gradually less and less productive in spite of all applications, when a quantity of peat ashes containing about 2 cwts. of gypsum, was afterwards applied, and a similar result followed,—the grass not only grew with greatly increased vigor, but a quantity of white clover made its appearance in the part dressed, in so marked a manner as to attract the notice of the farmer. In both these cases the gypsum had evidently a much more powerful effect on the clover and lucerne than on the grass.

So far, then, as my gleaning of facts and opinions extends, it seems to me that all we can be said to know with any degree of certainty regarding the action of gypsum on plants is, that it does not depend upon the moisture it contains, or is capable of attracting from the atmosphere; nor on its supposed power of decomposing organic matter. We may also infer that it is most beneficial to clover and other leguminous plants, and that it probably acts more powerfully on them in consequence of the great proportion of sulphur they contain. If this be so, it is easy to understand why in some soils it may add to the growth of most plants. If a soil contains all other substances required for the perfect nourishment of plants excepting sulphur, then a dressing of gypsum would have a visible effect on wheat, oats, &c., which require a comparatively small supply; and it should follow that if the quantity naturally existing in a soil were so small as not to suffice for the wants of these plants, that clover, lucerne or sainfoin, which contain much sulphur, could not, previously to the application of gypsum, grow in a healthy condition. A difficulty, however, arises here; if this were the case, if the exhaustion of the sulphur of a soil, were the only reason why gypsum is so beneficial on some soils, why clover and turneps cannot be repeated at short intervals with advantage; why do not these soils produce a similar effect on the potato and cabbage, for the analyses of the ashes of these plants indicate that they require a very considerable quantity of sulphuric acid? yet there are few or no districts where the potato, at least, is not frequently repeated on the same land, but we do not hear of lands being tired of potatoes or potato-sick.

The points on which more precise information seem to be required are the following:

1. Does analyses show a deficiency of sulphate of lime in soils where an application of gypsum is efficient, and an abundance in those soils in which it is inert?

2. Is gypsum on all soils beneficial to plants in proportion to the smallness of the quantity of sulphate of lime they contain?

3. Does gypsum act by different means in different soils and on different plants?

If it should be ultimately proved that the action of gypsum is chiefly due to the sulphuric acid which it contains, then a question will arise whether other sulphates or sulphuric acid, can be profitably substituted for gypsum on some soils or for some plants, as dilute sulphuric acid on chalk and limestone soils, or sulphate of potash for wheat, on land with sufficient lime. It would also be desirable to ascertain what are the chief causes of the difference in the quantity of sulphuric acid in soils—whether it is to be traced to a difference in the composition of different rocks from which soils have been derived, and consequently whether a knowledge of the geology of a district will enable one, without the aid of analysis or experiment, to pronounce whether an application of gypsum will be profitable or otherwise. Or, may the difference depend partly upon the mode of cropping pursued in different districts—to the presence or otherwise of sulphureous springs—or is gypsum conveyed to the land in unequal quantities in different localities in the ordinary dressings of lime?

The following experiments seem likely to throw some light on the main questions. I propose that they should be tried in at least three districts. 1. Where gypsum is known to be of the greatest benefit. 2. Where it acts on certain plants only, as clover. 3. Where it is of little or no use to any plants. A field should be selected in each district, well drained, nearly level, of uniform quality, free from the shade of trees, and which had been manured and cropped throughout alike, for three or four preceding years. A complete analysis must be made of the soil of each field, previously to the commencement of the experiments. The same variety of each plant should be grown in the three districts; it is desirable, indeed, that all should be supplied from the same sample. The culture of each plant must be alike throughout—all kept free from weeds—the land accurately measured and the entire produce of each patch carefully weighed. Notes should also be taken daily, of the state of the weather during the trial of these experiments—and, as will be seen hereafter, it is especially desirable that the time the gypsum remains on the leaves should be carefully observed. I propose that a patch of most of our arable plants should be grown and top-dressed alike—say in the first week of June, with the following substances:

1. Clover.	Lime.
2. Wheat.	Gypsum.
3. Oats.	Sulphate of Soda.
4. Beans.	Carbonate of Soda.
5. Peas.	Nothing.
6. Carrots.	Carbonate of Ammonia.
7. Potatoes.	Sulphate of Ammonia.
8. Mangel Wurzel.	Sulphuric Acid.
9. Corn.	Nothing.
10. Ruta-baga.	Gypsum.
11. Turneps.	Charcoal.

The burned lime used, should be slaked by exposure to the air; when reduced to powder it will be partly in the state of hydrate and partly of carbonate of lime; as carbonic acid sufficient for the wants of plants exists in the soil and air, I propose that carbonates of lime, soda, and ammonia, should be tried with the sulphates, with a view to determine how much of the extra growth of the plants is due to the action of these substances, and how much to the sulphuric acid. By a comparison of the produce of the different patches of any one plant, we may be enabled to conclude whether gypsum acts chiefly by means of its lime, its sulphuric acid, or its power of fixing ammonia.

A comparison of the produce of all the plants, will indicate whether gypsum acts differently on different plants growing under the same circumstances, and whether it is probable that other substances may be used with greater profit than gypsum, in certain localities. The advice of a professional chemist would be required as to the quantities of these substances to be used, and how they should be applied; it will be necessary, I apprehend, to consider what quantity of each would be required to afford an equal quantity of sulphuric acid; what is the degree of solubility, and the tendency to form fresh compounds when in contact with the soil.

A consideration of this subject, suggests another interesting inquiry, viz: how can gypsum be most advantageously applied to plants? One might have supposed that it would have been of little moment whether it was worked into the soil previous to sowing, or strown on the plants early in the spring, or if there was any difference, it would be in favor of the former practice, as by that means the gypsum would be more thoroughly mixed with the soil, and be useful to the plants from the commencement of their growth. The experience of farmers, however, points to a different result, and seems to indicate a peculiarity of action not yet understood, and which, therefore, requires to be cleared up by experiment.

Many have supposes that gypsum exercises the greatest influence when strown upon the plants in spring; some, indeed, consider that it increases the growth of plants in proportion to the length of time it remains on the leaves, and that if rain falls immediately after it is applied, it produces little or no effect. Cuthbert Johnson says—"he has noticed that the weather, at the time of spreading gypsum, has a very material influence on the result of the experiment. Its effects are never soon apparent when sown in dry weather, but if the season is damp, so that the powder adheres to the leaves and stalks, the effect is immediate." This, he says, has been observed in England and the United States. It is also said to be a well known fact with the sanfoin growers of Berkshire, the clover cultivators of Surry and Kent, and to the growers of lucerne in Essex and Middlesex.

In other instances, I find it has proved of great use to wheat, when strown on the plants in spring, and it is said to produce immense crops of peas, if applied when the plants are "looking up." At Wellwood, in Ayrshire, gypsum and salt were strown on a mixed crop of oats, beans, and peas, which, by some means had been much injured. The effect is described as like magic; the plants assumed a deeper color, and grew wonderfully. On the same farm, a similar dressing was applied to a portion of a crop of beans when coming into flower. The beans at the time were very weak, but they ultimately became as good a crop as other portions to which manure had been earlier applied.

Again, it is said in British Husbandry, that gypsum never appears to produce better effects than when it has been laid upon red clover already so far grown as that the leaves nearly cover the soil, "for there seems no doubt that it acts with the greatest force when it adheres to them, and that the longer it remains upon them the better."

These observations derive great support from a comparative experiment made by Professor Korte, who found that gypsum applied to clover, at different periods, produced the following results:

Undressed, 100 lbs.
Top-dressed the 30th of March, 132 lbs.
" " 13th of April, 140 lbs.
" " 27th of April, 156 lbs.

Thus the benefit derived seems to have been in proportion to the extent of the foliage on which the powder could be spread. The plants most advanced in growth when the gypsum was applied, having, with the same materials, accomplished the most work in the least time. It is, doubtless, of importance to ascertain by further comparative experiments, whether gypsum is invariably most efficient when it remains some time on the leaves; and if so, what is the cause of this special influence. Does the gypsum act immediately on the plant, while in contact with the leaves, or does it acquire some property by being exposed to the air, which afterwards renders it more efficient when mixed with the soil? Gypsum, when spread on the floors of stables, is known to purify the air by abstracting ammonia, and it is not improbable that gypsum may, in like manner, attract ammonia from the atmosphere, when exposed thinly on the leaves of plants. It would in that case prove a more efficient manure. If a small quantity only of ammonia exists in a soil, and if there were present, vegetable mould and other matters to prevent its escape, then gypsum would probably act by means of its sulphuric acid and lime only; but if before entering the soil, the gypsum had abstracted a certain quantity of ammonia from the air, the soil would obviously become richer in this essential food of plants. But if this is not the reason why gypsum is more efficient when strown on the leaves of plants, is it probable that leaves have the power of disengaging and absorbing the sulphuric acid and water of the powdered gypsum? As sulphuric acid is an essential constituent of those plants to which gypsum is generally most useful, may not the presence of sulphuric acid in the plant, in a more concentrated form, and greater abundance

than it would be if obtained from the soil only, cause a more energetic absorption and assimilation of alkaline bases from the soil, hence a more rapid building up or growth of the plant?

In "Lectures on Agricultural Chemistry," it is said Peschier has observed that gypsum laid on the leaves is gradually converted into carbonate of lime. If this invariably happens, then the change is effected by one of the two causes mentioned; either the sulphuric acid unites with ammonia, or it is absorbed. If it does unite with ammonia, then what becomes of the sulphate of ammonia formed? Is it gradually dissolved by slight rains or heavy dews, and so washed off the leaves. or is it in this state absorbed by them?

Experiments like these, I fear will be considered by many uncalled for and likely to be attended with too much expense. It is high time that a different mode of experimenting should be entered upon than has hitherto prevailed; it must be done, sooner or later, before any rapid or sure advance can be made in farming—and I cannot but think that there is wealth and energy enough in this country to prosecute such experiments now. If $600 can be given by an individual to listen, for a brief hour in most delightful raptures, no doubt, to the warbling of the "Sweedish Nightingale," surely it would be no difficult matter for the farmers of a state to raise at least an equal sum, to conduct an inquiry which would tend to benefit them individually, add to the resources of the state, and, I may say, confer honor on the country. It has been said of the distinguished Von Thaer, a man who seems to have combined within himself a greater amount of practice with science than almost any other writer on agricultural matters, that "the first care of all societies formed for the improvement of Agriculture, should be to prepare the forms of experiment, and to distribute the execution of them among their members." One state is distinguished for the growth of wheat, another for its dairy produce, another for raising cattle, and so on—let each State Agricultural Society consider what question it would be most for its interest to thoroughly investigate; then let the chemist, the vegetable physiologist, and the practical farmer, unite together in order to determine how the experiments should be conducted and what precautions must be observed in order to avoid the influence of disturbing causes, or of receiving evasive or erroneous answers to the questions it is desirable to solve. There is no nation on the face of the earth which should enter into such investigation with greater zeal than the United States. In Europe, and especially in Britain, great improvements have been made in agriculture of late years—and how have these improvements been effected? Chiefly by the skill and enterprise of the tenant farmer. On the strength of a lease, he has been ready to adopt suggestions, showing good ground for concluding that a profitable return would be obtained for money expended. He has laid out his capital freely, and although he may during the time of his occupation win back his capital with a liberal interest, yet many of the improvements he makes, are of a permanent character; consequently when his lease expires he has to pay a considerably higher rent for improvements which he himself has effected, or give way to another who will. Now in the United States, where the majority of farmers are owners of the land they cultivate, the case is very different; they have the prospect of reaping the full benefit of any improvements they may make. JOHN TOWNLEY. *Port Hope, Columbia county, Wisconsin*

Improvement in the Manufacture of Flax.

In a late number, we gave some remarks in regard to the discoveries of CLAUSSEN and others in the preparation and manufacture of flax. There appears to be no doubt, from what we have subsequently learned in regard to the new process, that it is of considerable value, and that it is likely to be extensively adopted. At the meeting of the Council of the Royal Agricultural Society for Feb. 12th, last, M. CLAUSSEN laid before the Council specimens of flax prepared on his plan, according to the following list:

1. Samples of flax in the straw, pulled and rippled.
2. Sample of flax-straw, prepared according to the new process, adapted for linen manufactures.
3. Sample of long fibre scutched from part of No. 2.
4. Samples of flax-fibre, adapted for spinning on cotton machinery.
5. Sample of yarn, spun on cotton machinery, some from all the above flax-fibre, others mixed in various proportions with the American cotton; these mixtures being termed by the inventor flax-cotton.
6. Samples of flax-fibre prepared for mixing with wool.
7. Samples of yarn produced on ordinary woollen machinery, composed of wool and flax in various proportions, termed by the inventor flax-wool.
8. Samples of flannel woven from the above.
9. Samples of fine cloth woven from yarn composed of flax and fine wool in various proportions.
10. Flax-fibre prepared for mixing with silk, and dyed of various colors.
11. Flax-fibre mixed with spun silk, and termed by the inventor flax-silk.
12. A sample of yarn produced from the above.
13. Samples of flax-cotton yarn dyed of various colors.
14. Samples of cloth woven from flax-cotton yarn and wool, dyed.

The following are the advantages detailed by the Chevalier Claussen and his friends, as possessed by the new process over the old methods:

1. That by the Chevalier Claussen's process the preparation of long fibre for scutching is effected in less than one day, and he always produces a fibre uniform in strength and entirely free from color, much facilitating the after process of bleaching either in yarns or in cloth.
2. That he can also bleach it in the straw at very little additional expense of time or money.
3. That the former tedious and uncertain modes of steeping are superseded by one perfectly certain, with ordinary care.
4. That in consequence of a more complete severance of the fibres from each other, and also from the bark and boon, the process of scutching is effected with half the labor usually employed.

[These advantages referred to that portion of the invention that includes the preparation of flax for spinning upon the ordinary flax machinery, and suited to existing markets.]

5. That by the new process, flax is rendered capable of being spun, either in whole or in part, on any existing spinning machinery.
6. That the fibre, to be mixed with cotton, or spun alone on cotton machinery, is so completely assimilated in its character to that of cotton, that it is capable of receiving the same rich opaque color that characterises all dyed cotton; and, consequently, any cloth made from flax-cotton yarn can be readily printed, dyed. or bleached by the ordinary cotton processes.

7. That flax-fibre can be always produced with profit to the British grower at a less price than cotton can be imported into this country with profit to the foreign producer.

8. That as a consequence of this advantage, the manufactures of this country will be less dependent on the fluctuations of the cotton crop for a supply of the raw material, and a more regular employment will be giving to the manufacturing population, and the present amount of local rates be greatly diminished thereby.

9. That the grower will derive great benefit from a supply of the wide demand thus opened to him.

10. That with respect to the advantages of being able to spin flax in combination with wool on the existing woollen machinery, the first is, that the flax prepared by M. Claussen is capable of being scribbled, spun, woven, and milled, in all respects as if it were entirely wool; having an advantage in this respect over cotton, which has not the slightest milling properties; on the contrary the flax-fibre is capable of being even made into common felt hats with or without admixture of wool. To such an extent has the milling properties of flax been proved, that the sample of cloth exhibited had been woven to 54 inches wide, and milled up to 28 inches wide.

11. That the flax-fibre will not, under any circumstances, when prepared for spinning with wool, cost more than from 6d. to 8d. per pound, while the wool with which it may be mixed will cost from 2s. to 4s. per lb.; consequently reducing the price of cloth produced from this mixture 25 or 30 per cent. below the present prices of cloth made wholly from wool, and being of equal, if not greater durability.

12. That short-wool refuse, which cannot by itself be spun into a thread, may, by being mixed with this thread, be readily spun, and manufactured into serviceable cloths.

13. That there is a probability of a further demand being opened for this fibre in the flannel and woolen trade.

14. That by this process, flax may be also so prepared as to be spun in any certain proportions with silk, upon the existing silk machinery; that when so spun, it is capable of receiving considerable brilliancy of tint. That the fibre may be prepared for thus spinning, at an uniform price of from 6d. to 8d. per pound. That as it may be spun in any proportions with silk, it is evident that the price of the yarns must be reduced according to the relative proportions of the material employed, thus extending the markets, and giving increased employment to the operatives.

15. That by M. Claussen's process of bleaching, any useless flax can be converted into a first rate article for the paper maker, at a less price than the paper maker is now paying for white rags, and suitable for the manufacture of first class papers.

Sir James Graham inquired, whether the farmer, in separating the seed from the straw, would be liable to injure the fibre? To which

M. Claussen replied, that no such injury to the fibre would arise from any of the present modes of separating the seed from the straw, so long as the separation was made longitudinally; that an ordinary thrashing-machine might be so employed as not to injure the fibre; in fact, that the only injury that could arise would ensue from breaking the fibre across, or steeping it on the old system.

Mr. Shelley remarked, that there was no difficulty in farmers growing flax, the only difficulty was to get a market for it. If M. Claussen could make it marketable for them, he would find no want of growers.

M. Claussen replied, that it was both simple and easy to prepare the flax for the spindle, and he would undertake to furnish persons properly instructed who would direct the farmers how to proceed. There was one house at Bradford, that of Messrs. Quitzow, Schlesinger, & Co., flax-spinners, dyers, and merchants, whose only fear was that enough flax wouldnot be grown for their use; and they were, he believed, ready to give £4 per ton for flax of fair quality.

Professor Way observed that the present system of preparing flax only applied to existing markets. M. Claussen's method, as he understood it, had the merit of opening new and extensive markets for this article; and there was one important point in the new plan—that there would in future be no distinction of flax into fine or coarse qualities. The farmer, too, under the new system, would not be obliged to pull his flax, as under the system hitherto in use, before it was ripe, in order to secure a higher price for his fibre; but, on the contrary, it will not be necessary to pull it until the seed and stalk were fully ripe. The farmer would thus obtain a larger proportion of fibre in proportion to the bulk, and a heavier crop of seed. He understood the quality of fibre in the new process not to be so essentially of importance as under the former plan, and that farmers may break the flax to reduce its bulk. The new material would be intermediate between linen and cotton; less valuable than the one, but more valuable than the other.

Drainage and Irrigation.

EDS. CULTIVATOR—Many valuable articles on the importance of drainage to the agricultural interest of almost every section of the country, have been given in your valuable paper for years past; but it is a subject of such magnitude, lying, as it does, at the foundation of all correct tillage, that the advantages arising from it should be repeated and reiterated, till farmers will hear, believe, understand and act. Although a good deal of that work has been *successfully* done, rendering land which was unfit for the profitable cultivation of wheat, (owing to the heaving of the wet soil by frost) dry and capable of raising crops of the best quality, where formerly a thin crop of mildewed stalks, and shrivelled grain was all that the best tillage could produce, yet a tithe of what is requisite is not done.

Travel where you will in western Pennsylvania, and you cannot find a farm that does not need further improvement by underdrainage, except some favored ones, where *nature* has done the work. And yet, in most places, we might render our arable land dry and productive, at less cost than the farmers of New-York, who use principally draining tiles; while we can very frequently be ridding the surface of the encumbrance of small stones, and with them constructing very efficient and permanent drains, and at the same time be putting the stones forever out of the way. It may seem paradoxical to recommend the drying and wetting of land at the same time.

It is nevertheless true, that irrigation, on soils and situations properly adapted to it, is scarcely less important than drainage. In the December number of the Cultivator, there is an excellent article on the value of that method of improving the soil, and its immediate product. An experience of forty summers enables me fully to add my testimony to that of Mr. Turner, that one acre of judiciously watered meadow land will, from its increased products, fully sustain and keep in a state of progressive improvement, a like quantity of upland. If

the soil in both cases, was pretty good to start with, it will do much more. It has been aptly stated that *manure* is the farmer's *gold dust*. Here, then, is a mine entirely too much neglected. I cannot, however, agree with Mr. Turner, that summer watering exhausts the land by pushing it beyond its natural strength. In the long experience alluded to, there has, certainly, been no such results, and we have practiced summer watering for that length of time. On the contrary, the after-growth has been uniformly most luxuriant. The only danger apprehended, is the over-growth of the grass intended for mowing, causing it to fall prematurely, thus injuring the quality of the hay.

It is said that the Chinese laugh at the idea of the "*earth* growing tired like an animal." But although she may not want rest, she does want food while she is producing a crop. And the water of brooks, passing along much travelled highways, and beneath farm buildings, does furnish in large quantities, the ncessary food for grass. I believe the soil is more improved by summer than by winter watering, because, owing to the heavy rains of that season, the streams are enabled to carry and deposit among the grass roots, a greater amount of sediment than the winter freshets; and the roots being active and hungry, receive and appropriate more of the soluble matter suited to their use, than could be done in their torpid winter state. Thus they frequently get a hearty meal without calling on mother earth. Still, I am more in favor of winter, than of long continued summer irrigation. There is less danger in the former than the latter season. The ground may be submerged for a considerable time in winter, without injury, while in warm weather, such treatment, by excluding the atmosphere, would be ruinous. For the successful application of water at that season, the ground must have sufficient declivity to permit the water to pass off freely. Flats, with tenacious subsoils, will always receive injury. Timothy will bear more water, and longer continued on it, than any *good* grass that we cultivate. W. P. *Unity, Jan.* 6, 1851.

Cutting and Curing Hay.

Eds. Cultivator—I take it for granted, that one of the principal objects of your journal is to benefit the farmer. Through this medium they can exchange views on the various subjects connected with their own immedeate interest, and can avail themselves of the improvements, experiments, and success of others, in the diversified operations of the farm. Theorists may, and often have, suggested many valuable hints and improvements, but practical knowledge is the current coin, and is an indispensible requisite in the successful management of the farm.

Experimental and systematic detail on any one branch of farm management, may benefit many, by enabling them to appropriate the experience of others, and turn it to their own account; and while I would urge upon others the utility of giving their various systems of management, I feel willing, in my own humble way, to contribute my mite to the general fund. In the following remarks, I propose to make a few suggestions in regard to cutting and putting up hay.

I cut and put up about one hundred tons of hay annually. The first point here, and in every other neighborhood where laborers are scarce, is to secure a good selection of hands, and notwithstanding this point may be attained, yet from the commencement to the close, much, very much, depends on the employer himself for success. If he is kind, courteous, sympathetic, and happy himself, making all about him to feel contented and at home, thus inducing a general interest in his efforts, he will go on well; but if he fails in these matters, small as they may appear, he had better abandon his business at once.

The haying season is a severe tax on the physical powers of the laborer. The employer should be careful not to place any obstacles in the way. A good and willing horse should never feel the lash; many a good team has been ruined by bad driving. If there be a sufficiency of hands to carry on the business, three or four should be put to the scythe. If they are honest men, they will make a fair day's work, whether they are paid by the day or acre; that is, if fifty cents be a fair price for mowing one acre, and seventy-five cents be the price of a day's labor, an honest man will feel himself bound to mow one and a half acres. It will, however, generally be found better for both parties to have the grass cut by the acre. Mowing by the day, especially when the weather is very warm, the scythes are apt to become so dull, that many a poor fellow has been nearly exhausted by his incessant whetting; but when mowing by the acre, the scythe almost invariably retains a sharper edge, and he who swings it shows no more sympathy or pity for the falling grass, or the grasshoppers perched upon it, than an energetic farmer, with a deadly weapon, would do in the midst of a patch of Canada thistles.

My clover is carefully scattered immediately after the scythe, and when sufficiently wilted is put up into neat cocks, and permitted to stand one, two, or three days, according to the weather. Previous to storing, it is opened to the sun a short time and then finally disposed of. I consider clover hay cured in the cock, worth almost double that cured in the sun. My timothy hay is cured in the sun, and is never cocked up unless it is not sufficiently dry, and rain is approaching. The principal part of my hay, is fed to sheep in the meadows during winter. Where barns are not erected for the reception of the hay, it is thrown up into stacks or ricks, in the meadow. It is the business of one man to manage the horse-rake; another follows with a fork, commencing at the end of the windrow, and rolls the hay before him as far as he can conveniently do so. He then advances along the windrow, and when far enough to equal his first deposit, he faces about and rolls before him to the former deposit; he then places the fork under the hay and the last roll is flapped on top. In this motion a slight pressure is given to the hay with the hands and breast. It is true these are rough bunches, but they answer for the purpose of hauling, which is all that is intended. A boy follows with the hand rake which completes the operation. Then comes the hauling, and where the distance does not exceed twenty or thirty rods, hauling with the rope is far the most expeditious method. I do not deem it necessary to advert to the manner of pitching and hauling in this way, as its superiority has no doubt rendered its adoption almost

universal. Two ropes, two horses, and two boys, can deliver the hay at the rick faster than the most powerful pitcher is able to dispose of it. And here permit me to remark that the person selected as the stacker, should be one of the most energetic and industrious of men. A man whose thoughts are wholly engrossed in contemplating the dollar, seventy-five cents, or whatever may be his day's wages, and moreover feels religiously conscientious that the price of harvest wages is too low; or, if he is one who is only willing to move as circumstances make locomotion imperative—should never be placed on your stack. Better borrow money at one hundred per cent interest, and pay double wages to one who will do justice to the business on hand, than to have the services of the other for nothing.

But let it always be borne in mind, that the duties incumbent on the employer and laborer, are reciprocal. If the employer boards his hands, he should give good, sound provision, at proper times, and plenty of it. He should promise full and fair wages to his laborers, and should perform that promise with the same scrupulous regard, as if it were his oath. In short, he should require nothing of his laborers but that which is clearly right, and as far as it is in his power, should guard against a spirit of jealousy between him and them. It is most truly a sad state of affairs when the employer is found using every stratagem to invite or extort to greater effort, at the same time the laborers are counteracting his grand object in this particular. Such a state of affairs proves either the entire incompetency of the employer for his position, or that he has been so unfortunate as to have employed an Arnold or a Judas, and if the latter, the sooner he informs him that his services are no longer required the better. One man whose feelings are adverse to the interest of the employer, is sometimes capable of spreading the leaven of disaffection, and either causing a general explosion, or marring the pleasure, comfort, happiness and harmony of all concerned. G. *Moore's Salt Works, Jefferson county, O., Feb.* 1851.

The Potato Disease.

I. *The Gardener's Chronicle, on Potato Disease.*—I noticed in the September number of the Horticulturist, an extract from the Gardener's Chronicle, a periodical edited, I think, by Prof. LINDLEY. This article, while it notices the effect of the damp, hot weather of the last summer upon the potato crop, seems to charge the disease to a *fungus* formed upon the plant. It is said to exhibit two forms, and is supposed to give origin to two different diseases. My means of nice inspection, and my habits of research, do not qualify me to investigate the disease in this mode. I would not deny the utility of such investigations, nor doubt that, in some cases of vegetable disease, health may be restored by modes of treatment directed to the repulsion of such fungus, as in the case of sulphuring grapes, and the application of salt and strong wood ashes to gooseberries. Yet it seems to me that every one, whose essays in the closet are the fruit of his own daily observations in the field, must be convinced that both the fungus and the insect in diseased potatoes are usually not the cause but the consequence of disease. He will equally be convinced that the disease is usually traceable to the general unpropitiousness of of the climate, or the unpropitiousness of a single season, aided often by the too stimulating course of culture adopted, and the neglect to renew the seed occasionally from the pootato ball. The fungus then becomes the mere eruption of disease, previously existing in the elaborating system of the plant.

Have not inquiries on this subject usually begun at the wrong point, i. e., at the *mode* of morbid development, rather than at the probable *causes*? Had the inquiry been, what are the constitutional requirements of the potato in its normal condition as a mountain tropical plant; what would be the probable influence of cultivating it in a climate presenting the wide extremes which ours does; and what the influence of a course of culture so stimulating as that which is usually adopted, joined with the negligence usually seen in the modes of obtaining seed,—I say had inquiries taken these directions, at the first development of this disease, we should not now be involved in so utter uncertainty about its cause, but might, I think, have been far advanced on the highway of improvement.

My usual experience has been that the first visible indications of disease are a peculiar paleness of the whole plant, that is, a loss of its usually deep verdure, and the exhibition of a light, almost yellowish green, followed quickly by a falling of the flowers whether open or not, a tinging of the extremities of its upper leaves with steel blue, and of its lower leaves with spots like stains of iron rust. Both these marks on the leaves are speedily followed by the death of the leaf. At the same time, and often preceding these appearances on the leaves, the top crest of the plant wilts.

At other times warm rains are intermitted with hot sunshine, which seems to occasion a white mildew over the whole plant. This mildew however does not ordinarily either attend or succeed the preceding symptoms. Indeed, I have never observed it until during the last summer and autumn. At intervals, longer or shorter, after the preceding indications, disease is seen upon the tubers. The thing to be particularly noticed however is, that the preceding indications are always and only preceded by sudden and severe changes of weather, especially by that which is wet, cold and windy, coming in subsequent to that which had been hot and dry; nor is the disease of the tubers ever known to occur except when preceded either by these sudden changes, or by the hot and wet weather.

II. *The Remedy of Dr. Klotch.*—This proposed remedy consists in cutting off the extremities of the plant occasionally during its period of growth. The value, if any, of this proposed remedy lies in the fact that it checks the development of vegetable tissue, and so gives firmness to what remains, while it leaves no very succulent portion in which disease may locate itself. This remedy, as far as it is such, is obviously founded on physiological principles. But I utterly question its power in severe cases. If the theory of disease hinted at in No. I, above, be at all correct, then a field where top shoots should be shortened just *before* a severe change of weather would not be saved, since the general succulence of the whole plant would expose it to the severity of the weather. Less benefit still would be ex-

perienced where the change of weather *had already begun*. Allowing however the utmost benefit to this method, it would, in the case of a crop in a rich soil, need frequent repetition, since it is found that the disease may arise at almost any season during the growth of the plant, should sudden changes frequently occur. This supposed remedy then proves to be uncertain in its application and also expensive.

III. *A late English Remedy—that of corering the stems with earth.*—That heat, light and air are essential to the growth of vegetation and especially to the perfect maturity of seeds and fruits is a position too well sustained by the general experience of mankind to require a formal proof. Hence the reason of pruning fruit trees, and of sowing and planting seeds at suitable distances, stirring the soil frequently, &c. To suppose then that, if you cover up the most of the foliage at or before the time of the greatest development of the plant, or even at a considerable time afterwards, the fruit, i. e., in this case, the tubers, will mature just as well, or even nearly so, as otherwise, is against all theory, analogy and experience. Grant, (what I believe to be true) that the disease is occasioned by sudden changes of weather acting on the elaborating system in the foliage; and that, (which I also believe,) our climate is too hot and bright for the normal requirements of the potato, who would look for a remedy in a mode of treatment that entirely deprives it of light and, to a considerable degree, of air and heat.

Suppose also that the stems of the plant, when at their full size, contain the most of the material needful for the growth of the tubers, yet it must be in an immature state. In covering up the most of the foliage with earth at this period, you do, of course, destroy the leaves, those great elaborators of all vegetable material, and with them the elaboration itself. Does any one doubt this, let him strip a plum or an apple tree, a tomato or cucumber vine, while the fruit is immature, and it will never ripen. And yet all these fruit have a local power of elaboration accessory to that of the leaves which the tubers of the potato have not; so that comparatively they are less dependant on the foliage of their respective plants than is the potato on its foliage. That, in the old age of the potato, at a season when common experience shows that its morbid liabilities are mainly past, that then, when the leaves begin to wither from natural ripeness, the stems contain a considerable amount of mature matter is evident from the fact that the crop of tubers is found to increase in weight until the stems are quite dead. But it may be asked, does not some degree of elaboration go on in the stem when covered, especially in connection with those leaves that remain uncovered at the extremity of the plant; and may not this state of things be preferable to a larger amount of foliage diseased by its exposure to atmospheric changes? It may be so. Experience must decide this question. But who would expect a full crop, or call this a perfect remedy? Further, when you consider the labor of this process and the greater breadth of ground, and the correspondent diminution of crop, needful to carry out this plan without disturbing the tubers, it certainly does not deserve the dignified appellation of a *remedy*.

One general remark may close this discussion. When once the disease has begun widely to pervade the foliage, all hope of saving the crop, except by the excision of the vines, is hopeless, except in those cases where, acting with great rapidity, it at once parallizes the circulation, like a sudden frost, and so prevents the transmission of morbid matter to the tuber. In most cases of wide-spread disease all remedies except excision are as powerless as the heat of a bonfire in arresting the approach of the winter. C. E. G. *Utica, Jan.* 4, 1851.

Peat and Peat Charcoal.

ANALYTICAL LABORATORY, YALE COLLEGE,
New-Haven, Conn., May, 1851.

MESSRS. EDITORS—I have been led to take up the above named subject at the present time, by the interest which attaches to "A report on the economical uses of Peat," by Dr. Thomas Anderson. Dr. Anderson, as many of your readers are aware, is chemist to the Highland and Agricultural Society of Scotland. This gentleman virtually fills the position once occupied by Prof. Johnston, as chemist to the Agricultural Chemistry Association of Scotland, that body having now in a manner merged into the Highland Society, of which it was indeed originally in some measure an offshoot.

Dr. Anderson seems a worthy successor to the distinguished gentleman who preceded him in the same field, and in the time that he has been chemist to the society, has produced some very able, valuable, and interesting papers. To one of these I have referred above.

The results given in this report, are deduced from investigations that were suggested by the extravagant expectations entertained, and promises put forth, by various societies and individuals, on the practicability of converting peat into a great variety of useful and costly substances with comparatively little outlay. Sulphate of ammonia, acetate of lime, naptha, paraffine, &c., are all produced by the distillation of peat, and as it is asserted, at a profit of about 100 per cent. Dr. Anderson's paper throws, as I think, a very great degree of doubt upon the estimate of profits, and renders it probable that this new process, like many others which have preceded it, having the same object in view, will be found too expensive when tried on a large scale.

This part of the "Report" is of least interest to us in the United States, as we have comparatively little real peat. Our extremes of temperature seem not to be favorable to its growth, and so far as my experience extends, it is only to be found on certain parts of the New-England sea-board, where the climate somewhat resembles that of those parts of Europe where peat formations abound.

Our natural boggy or swampy accumulations, are for the most part included under the term *muck*, and are a species of vegetable deposit in low grounds, rather than a regular vegetable growth, such as may be seen in Scotland, uplifting the surface of a peat moss even above that of the surrounding and drier land. This muck has not by any means the indestructible nature of true peat; on exposure to the air, in place of becoming a hard insoluble mass as is the case with peat, it soon crumbles away and decomposes into a rich vegetable mould. This process is especially rapid if it is mixed in a compost, or laid in the bottom of a barn-yard. Here then in the

outset, our farmers escape one great difficulty with which those of Scotland are obliged to contend. We have to do with a mass of rich vegetable material easily convertible into manure; they with the same material as to its ultimate composition, but in a present form which if once dry, bids almost entire defiance to the ordinary action of the elements. Their most advantageous method of forming a soil upon the surface of a peat bog, is in many cases to burn by successive parings to a depth of one, two, or three feet, and to mix the ashes thus formed with clay or earth brought up from under the remaining peat. Such processes, and in fact all processes for forming what must be for the first few years an almost wholly artificial soil, are always expensive and tedious. It is therefore fortunate for us, that our farmers in reclaiming their swamps are not, in a great majority of instances at least, obliged to have recourse to them. As soon as our swamps are drained, natural influences commence their work upon the surface, and alter it in such a manner as soon to form a soil, capable of bearing valuable crops.

But there are other points touched upon in this report, that have their importance for the American farmer. The first of these to which I would at present call attention, is relative to the absorbent properties of *peat-charcoal*, or as perhaps many farmers would term it, *charcoal-peat*. The preparation of this charcoal, and its uses in absorbing ammonia, have been always put forward as a prominent advantage connected with the various projects for reclaiming bogs by partial burning. It has been generally supposed that any form of charred vegetable matter possessed, in a considerable degree at least, the same powerful absorbent properties with regard to ammonia, which exist in wood charcoal. Dr. Anderson's experiments indicate that we have been deceived upon this point, and have greatly exaggerated the absorbent powers of many substances.

The peat charcoal acts, it seems, as a *deodoriser*, without acting powerfully as an *absorbent*. The general belief has been, that it would act in both ways with almost equal effect; hence its extensive use in mixing with night-soil, and all putrescent and offensive manures. Poudrettes have been very largely prepared in Europe, by mixing with this material. The fact of its successfully removing all perceptible smell from most offensive mixtures, has been considered a sufficient proof that all of the ammonia, and other valuable escaping products, had been arrested and permanently preserved.

So fixed has been this impression in the public mind, that patents have been taken out for the manufacture of peat-charcoal, and for its employment as a manure in the form of various mixtures. We read accounts of public meetings, where samples of night-soil deprived of smell by means of this charcoal, were exhibited as undoubted evidence of its immense value in directly increasing the ability of the farmer to fertilize his land, by means of cheap and at the same time concentrated manures.

It is scarcely necessary to say that this charcoal, or any charcoal, cannot in itself hold a high rank as a manure. They all chiefly consist of carbon, hydrogen, and oxgyen, the first being by far the larger constitutent, and their value is less as an actual manure than an equal bulk of any common vegetable substance, on account of their comparatively undecomposible nature. The chief importance then of peat-charcoal, as Dr. Anderson observes, is clearly owing to the absorbent powers which it is supposed to possess.

Upon this point he gives us the results of some very careful examinations.

He first tried filtering a liquid containing a small known proportion of ammonia, through a deep layer of peat charcoal; the liquid passed out at the bottom with the smell of ammonia perfectly distinct. On passing putrid urine, having a distinct ammoniacal reaction, through a similar layer, the liquid came out colorless, and deprived of smell, but still distinctly ammoniacal. This proved that the absorbent powers of the peat charcoal were not very rapid in their action. He went still farther however, and allowed various ammoniacal solutions containing known quantities of ammonia, to remain in contact with peat charcoal for some days, under favorable circumstances for absorption. The largest proportion which he found to have been absorbed, amounted to but about the tenth of one per cent. A like experiment with putrid urine, afforded even a still more unfavorable result. Seven or eight trials of this kind, served in the words of Dr. Anderson, to show—"that the absorbtive power of peat charcoal for ammonia, is so small as to be practically of no importance, and its use for this purpose cannot be recommended to the farmer." These are somewhat unexpected results, and probably bear on other varieties of charcoal; indeed I am led to doubt whether wood-charcoal, for practical purposes on a large scale, would exert more than a small part of that extraordinary absorbing power for ammonia, that is shown in the laboratory in a small way by carefully prepared samples. As a deodoriser, it is powerful, but from the character of these trials, I should desire farther experiments before advising the farmer to rely upon it entirely as an absorbent.

Examinations of poudrettes, made by mixing peat charcoal with night-soil, showed that little ammonia had been retained, and that their value as manures was not very great. In fact it would have been at least equally advantageous, to have mixed the night-soil with any sample of porous earth, inasmuch as Prof. Way has shown that all soils possess the power of absorbing quite appreciable quantities of ammonia. The conclusion arrived at is, "that a ton of the night-soil would be much more valuable, and also greatly cheaper, than a ton of the mixture."

Another important branch of this subject was investigated by Dr. Anderson, and it is one which has a still more practical bearing on the operations of the American farmer. He was led to try some experiments upon the power of the peat itself in absorbing ammonia. It is, as all know, a highly porous substance, and might be expected to retain something from liquids brought in contact with it, but the actual result surpassed all expectation.

A weighed portion of peat, dried at 212°, was employed; to this a small quantity of a solution containing a known per centage of ammonia was added. The fluid was of course instantly absorbed, and at the same time the smell of ammonia disappeared, as well as all traces of alkaline reaction. "The ammoniacal solution was

gradually added in small successive quantities as long as its odor and reaction disappeared." At a certain point it was found that the odor and reaction reappeared. It thus became evident that ammonia was rapidly and rather largely absorbed. The peat was still quite dry to the touch, but from the known quantity of ammonia added, was found to have absorbed no less than two per cent of its weight. The same sample was afterward spread out in a layer, and exposed to the air for 15 days, when the quantity o ammonia was found to be still 1½ per cent. "It appears then from this experiment, that peat is capable of absorbing fully two per cent of ammonia without acquiring an alkaline reaction, and when exposed to the air until it again becomes tolerably dry, of *retaining* no less than about 1½ per cent."

The results of subsequent experiments which are detailed in the report, correspond very well with the above statements, and seem to establish the fact that peat is extremely valuable as an absorbent of ammonia, the above quantity being larger than that contained in ordinary yard manure.

Some samples simply dried in the air, also afforded a most encouraging degree of success. I see no reason why the same action is not to be expected from our more easily decomposible muck, nor why some of its well known beneficial effects in composts may not thus be clearly explained. The material from the Scottish swamps becomes hard when dried, and requires considerable power to reduce it to a fine state of division; ours crumbles naturally away, and might easily be dried if spread out in the hot sunny weather of summer. It would then be in the most advantageous state for mixing with manure heaps, spreading over the bottom of barn-yards, or soaking up the liquid of tanks. For such purposes as the latter, it might even be found advisable to dry small quantities by means of artificial heat.

I consider the new view of this subject thus offered by Dr. Anderson, as of very high importance. It indicates to those farmers who have already discovered the value of the muck-heap, the best way of reaping advantage from it; it points out the inestimable importance to the future agriculture of this country, of those vast vegetable deposits which have been for ages accumulating, as it were for the express purpose of repairing the ravages which short-sighted ignorance has made, in the almost utter exhaustion of many of our fairest and originally most fertile districts.

I would recommend experiments in mixing severally dried and undried peat, common earth and charcoal, with like quantities of barn-yard manure. Yours truly, JOHN P. NORTON.

Profits of Farming.

This was the subject of discussion at one of the farmer's meetings at the State House in Boston last winter. The speakers expressed different opinions in regard to the profits of farming. This diversity of opinion is not strange, when it is considered that the profit and loss of farming varies according to many circumstances. Thus a good farmer, favored with a good farm, and enjoying advantages in regard to markets, would have no hesitation in declaring that "money could be made by farming," while another, differently situated, states that "it is a general opinion in his section that farming was not profitable." As some of the estimates and statements may interest our readers, we abstract the following from the *Plowman's* report.

Mr. BARRETT of Belchertown, said he had seen men commence by running in debt for land and pay for it, and increase the dimensions of their farms. The farmer should study the nature of his soil and what is adapted to it. Some kinds of produce would be profitable while other kinds might not. In various breeds of stock, there was nearly one-half difference as to profit. Some breeds would give nearly as much again profit as others on the same keeping. He referred to a man who purchased a farm worth $2500, who had paid for it, and now had money at interest. Where they had one farmer fail, fifty manufacturers were blown sky high!

Mr. SHELDON, of Wilmington, thought farming under good management, as profitable as any other business. Mechanics and traders could not subsist unless there was profit in farming. As an example of the difference in management, he said he had seen two men with two small yokes of oxen plowing in one field. in the adjoining lot he had seen a boy with one yoke of large cattle doing a better business. He cited the case of a woman whose husband died $800 in debt. Her oldest boy was now 21. She had paid off the debt, brought up her family at home—the buildings were improved, and the whole would sell for 50 per cent. more than when she took charge of the farm.

"A change has been going on."

In years past there has been a constant tide of emigration running from country to town. Young men and maidens, to gratify their pride, ambition and acquisitiveness have left their father's firesides and taken up their abode with strangers. Old farmers in a great many instances, have been unable to keep one of their sons at home, to take care of them in their declining years, and to take the homestead when they are "gathered to their fathers." In some rural districts there is now scarcely a young person between the ages of sixteen and twenty-five. It is not strange that the professions are full, and that all industrial occupations are crowded with operatives. The supply of manufactured commodities is exceeding the demand, and prices are decreasing; consequently wages are not so high, and there is not that inducement there was once, to engage in other than rural pursuits.

"A change came o'er the spirit of their dream." Man, like the lower animals, loves the pure air and free sunshine, to roam over the green fields, and to find "pleasure in the pathless woods." Confined to toil year after year, between walls of brick and mortar, hearing only the everlasting hum of machinery, or engaging in the unvarying routine of business, is a life hard to be endured. Hence the eagerness with which the tired denizens of the city, rush out into the country when an opportunity presents itself. The poor artisan who is obliged to labor every day for his daily bread, must stay in the smoke-stained atmosphere, whereas if he could "*vote* himself a farm," he would soon leave the crowded

city. Many that have gained a competency are seeking a home in the country. And young men that a few years since left their father's farm, thinking it would be a fine thing to work in a manufactory or machine shop, are becoming weary of such a life. Although receiving good pay, it is irksome after awhile, to be controlled by the factory bell, in their "goings out and comings in." Very unpleasant to think that the burden of life is to

"Eat, work, sleep, and then
Eat, work, and sleep again."

Hence, discontent arises, and magnifying the evils of their situation, they pine for the free and independent life that the farmer enjoys. And so, many that left the farm and became artisans, return again to the vocation of their early days.

Radical changes may sometimes be wise, but they are often disastrous. A person by changing his occupation does not change his character, nor acquire thereby a new accession of energy or wisdom. It requires time for one to adapt himself to a new situation or a new pursuit; there are disappointments to meet, and evils to encounter that imagination had not suggested, and many have verified in their own experience the sentiment of Watts,

"It is a poor relief we gain,
To change the place and keep the pain."

The "sign of the times," if we read them aright, do not indicate so great a degree of prosperity as has been enjoyed for a few years past. Should there be a still greater depression in the manufacturing interest, other interests will also suffer, and there will be greater inducements to engage in agricultural pursuits, as those always give promise of the means of living. Therefore it would be unwise for farmers, at present to think of "selling out" and changing their vocation. W. L. EATON.

Good and Bad Farming.

EDS. CULTIVATOR—Having long been a reader of your journal, and having grown up under its teachings, I take this opportunity to let you know what I am about. The farm I now occupy, contains over 500 acres, 200 of which are under improvement, 100 are marsh, and the rest timber and pasture land. The soil is composed of a rich black loam, mixed with fine gravel. This being my second years' experience as a farmer, you will not expect great things. In giving you a description, I shall draw a picture of farming as it is done in our neighborhood, with few exceptions. In the first place as manure demands our first attention, we manage it in the following manner. Our straw, (of which we have great quantities,) is stacked on the ground, and pulled out and trod under foot by cattle. These huge piles are left to ferment one, two, or three years, till they become less bulky, and then you hear farmers say—"manure does no good"—never thinking that in the exposure it has been subjected to, it has lost much of its fertilising property.

Next comes plowing for spring crops, which is done by beginning somewhere in a lot and going somewhere else on the other side, without any regard to width of land or straightness of ridge. The plows are without wheels, and are drawn by two light horses or oxen, at a depth of from three to five inches. There are some exceptions to this kind of management among those who take the Cultivator; but I am speaking of those who have skinned their farms till the bones begin to stick out, in the shape of mortgages. Now I farmed it one year in this way, and cleared about $200. This set me to thinking, the result of which was (after long consultation with the Cultivator, old and new volumes,) the sale of my light teams and the purchase of heavy ones. I rigged my plows with wheels, obtained labor-saving machines, cleaned out the manure from my yards twice a year, plowed it in once, and then plowed some two inches deeper, thus mixing the manure and subsoil together. The result of this different management was $400 profit. I now keep three books; one a memorandum-book, in which is noted everything that needs doing; one a day-book, in which I note what has been done each day, and one for accounts. There are a few things that are very important to farmers here: 1st, to save manure; 2nd, stock their farms to clover; 3d, deep and thorough plowing. L. D. WATKINS. *Elba, Mich.*

Farmers should Read.

MESSRS. EDITORS—As this is the season for study and mental improvement with farmers, it is to be hoped that it will be improved to the best advantage.

Could the body of farmers in the several states, improve their leisure time in the study of the farm, and in gaining general knowledge, a greater impulse would be given to improved agriculture than all the "Fairs" have done in the last five years. It is true our yearly fairs please the eye and improve the mind, and help to keep up a friendly feeling among farmers. Yet it is the study of the farm by the farmer, that leads way the to permanent improvements. Examples from intelligent farmers go a great way in introducing improved methods. Yet there are but few farmers who make improvements, unless they are in all respects *reading* and *thinking* men.

Of all classes of laboring men, farmers have the most leisure in course of the year, and they ought to be the best educated. It has been the practice, in what are called the "Professions," for men to spend years in close mental application to fit themselves for their calling. And what business is followed which requires a more varied study than that of agriculture? That it is generally carried on by a scanty supply of "head-work," I am ready to admit. But this does not prove that it is, or should be necessarily so. It only proves that the farmer is willing to plod on from year to year at a haphazard rate, with a less amount of knowledge of his business than would satisfy any other class of men. I am often surprised, in asking farmers to take and read an agricultural paper, to hear them reply that they would take it, but they have not the time to read it. In nine cases out of ten, the plain English of this is they have not the will or disposition to read. The worst of all excuses that the farmer can plead, is that he has not the *time* to read. Every individual has time to spend well or ill, as his tastes dictate. That farmer who does nothing more than dig and delve, from the beginning to the end of the year, lives to a very small purpose indeed.

There is a satisfaction found in reading and improving the mind, which can only be appreciated when it is experienced. The farmer who only reads his weekly newspaper, during the long winter evenings, knows very little of

the economy of time in reading. Let him reduce his reading to a system and he will be astonished at the amount of agricultural and other reading that he can master in one winter. But if any reading must have the preference, let it be that which relates to the farm. L. DURAND. *Derby, Ct., Jan.* 28, 1851.

Destruction of Quack Grass.

There are few foes of cheap and easy cultivation so unconquerable, by common means, as quack grass. Its horny headed runner pushes its way readily through all sorts of soils, not stopping for a potato, through whose tubers I have twice known it to penetrate. A large amount of labor is often spent upon quack grass to little effect. The secret of its cheap and ready destruction lies in hoeing it frequently and thoroughly in dry weather, in connection with a crop that admits of being worked among all summer. Indian corn and cabbage are those crops in the cultivation of which I have frequently eradicated quack in a single season. On small spots, and amid the culture of delicate vegetables, it is undoubtedly best to extract it from the soil with the spade and rake, removing and burning the whole. But faithful hoeing and shaking it up, in dry weather, in the cultivation of the abovementioned crops, will certainly destroy it in a much cheaper manner. C. E. G. *Utica, Jan.* 23, 1851.

DOMESTIC ECONOMY.

Dairy Matters.

SCALDED OR "CLOUTED" CREAM.—A practice has been long pursued in Devonshire, England, and has been to some extent introduced in this country, of scalding the milk for the purpose of making butter. It is a common opinion that the scalding process increases the quantity of cream and butter from a given quantity of milk. But in the report of a late survey of the county of Somerset, published in the Transactions of the Royal Ag. Society for 1850, there is an account of an experiment, by which it appears that there is no increase in the weight of butter by scalding the milk. Two lots of milk, of twelve quarts each, were taken—the one scalded, and the other set in the ordinary mode—the butter from each was carefully weighed and then subjected to analysis by Prof. WAY. The analysis showed that the proportion of pure butter in that made from the scalded milk was not greater than from the other. It appears, however, that there are some practical advantages attached to the scalding process, which are "that the butter is more quickly made by stirring with the hand or with a stick; and that it keeps much longer." The analysis throws little or no light on the question why the scalding process should add to the keeping quality of the butter. The advantage in churning is attributed to the bursting of the bubbles of casein which contain the oily matter, by the heat, thus facilitating the process of separation; and it is probable that this perfect separation of the oil from the casein, is the cause of the butter from the scalded milk keeping better.

SCALDING MILK.—A correspondent of the Dollar Newspaper, says that in Cornwall, England, milk, after having been cooled some hours, is scalded over a *very slow* fire, and then again cooled. "The cream is taken off from 24 to 30 hours from the time of milking, as needed. Cream from milk thus managed, is delicious—too good to talk about—and so rich and thick that I have seen a common dinner-plate laid on the pan on the cream, without breaking its surface."

PROFITABLE COW.—JOHN NICHOLS, of Salem, offered at the last exhibition of the Essex county (Mass.) Ag. Society, a cow seven years old, which he stated had given in the preceding sixteen months, 6,100 quarts of milk. Of this quantity, he states that he sold and used 1,274 quarts at six cents per quart, $76.44, and 4,826 quarts at five cents per quart, $241.30—making a total of $317.74. The expense of feeding the cow in the same time, was stated at $104,74,—leaving a profit of $213. Her average yield of milk for the sixteen months, was twelve and a-half quarts per day. She calved twice during that time: viz: April 29th, 1849, and March 7th 1850.

ANOTHER VERMONT DAIRY.—The *Green Mountain Freeman* states that E. MARSH has made, the past season, from four cows. 934 lbs. butter, and 100 lbs. cheese, besides the milk and cream used in a family of two persons; from the skimmed milk, and about eight bushels of corn, 648 lbs. of pork.

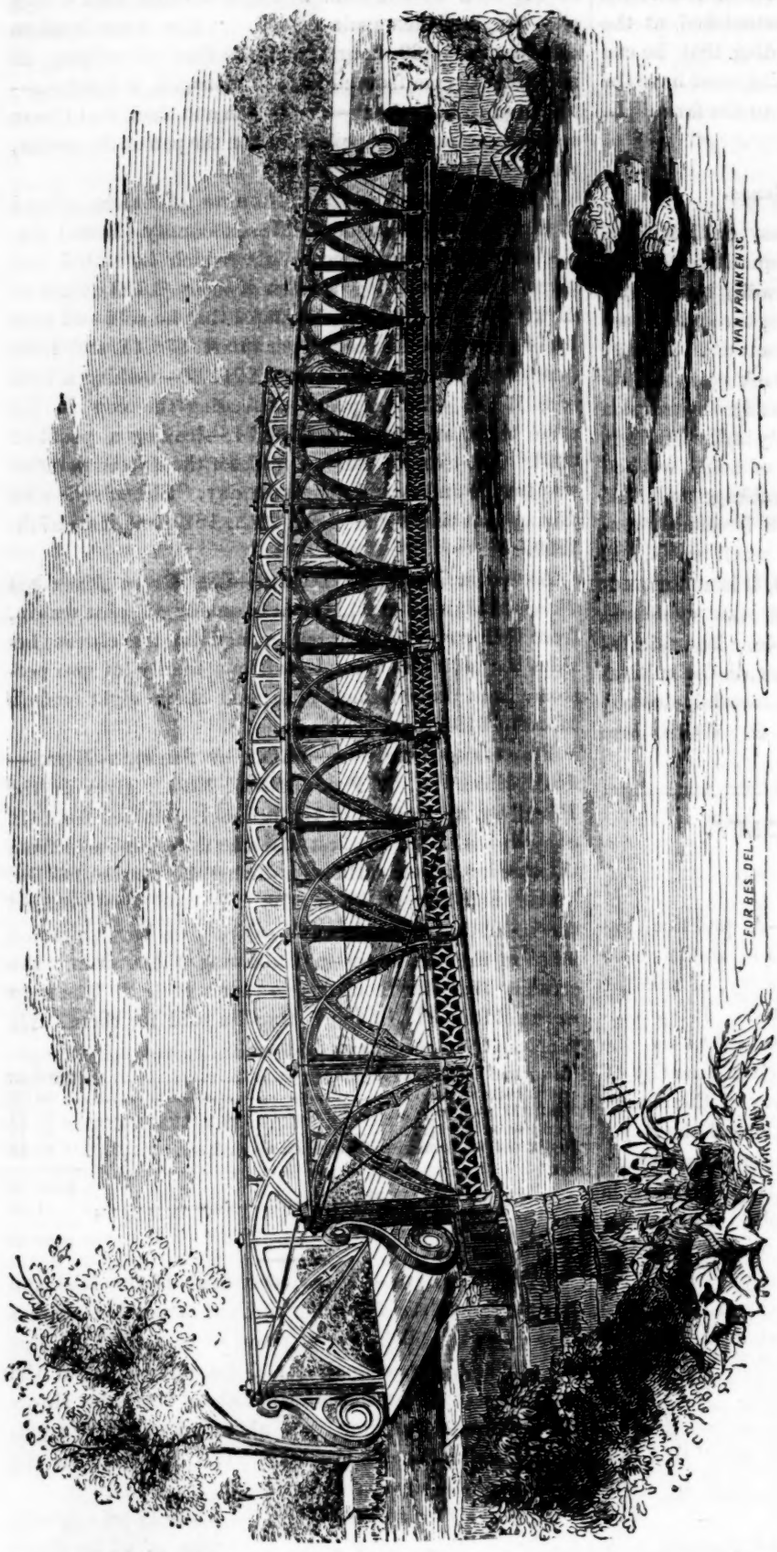
PROFITS OF SIX COWS—VALUE OF SKIMMED-MILK.—JOEL EDMUNDS, of Framingham, Mass., gives in the *Plowman*, an account of the products obtained from six cows in 1847. In the first place he fatted and sold from them seven calves. He sold during the season, 963 lbs. butter, and 117 gallons of milk. In April he purchased three shotes which he fed *entirely* on the skimmed milk of the six cows—not allowing them even "the crumbs that fell from their owner's table." The hogs were sold for $44,19 more than he paid for them. He sums up the proceeds as follows:

Butter sold 963 lbs. at 21¾ cts. per lb.,	$208 65
Seven calves,	44 85
Milk, 117 gallons,	12 74
Increase on pork,	44 19
Butter used in family, probably 75 lbs.,	16 25
	$326 68
Deduct for one calf purchased,	1 25
	$325 43

LARD CANDLES.—A correspondent of the Michigan Farmer, gives the following method of making candles of hog's lard, which he says prove of best quality. Put all the lard, say enough for 5 lbs. of candles, in the smelter; after it attains a heat of about 200 Fahr. throw in 3 or 4 ounces of lime, and about an ounce of aquafortis, and then mould them. The lime purifies the grease and the aquafortis hardens it.

TO KEEP PRESERVES, apply the white of an egg with a suitable brush to a single thickness of white tissue paper, with which cover over the jars, overlapping the edges an inch or two. No tying is required. The whole will become, when dry, as tight as a drum.

NEW-WATER CEMENT.—It is said a very strong and valuable water cement has been made by Gen. Pasley of the British army, consisting merely of four parts by weight of chalk and five of blue clay. According to the experiments made to prove its strength, it must possess extraordinary tenacity.

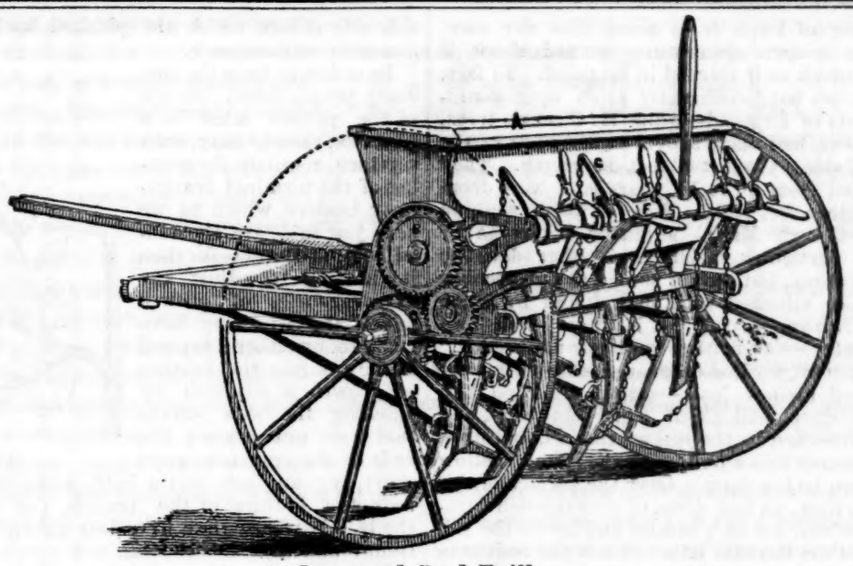


Severson's Iron Bridge.

The above is a view of an Iron Bridge, invented by B. SEVERSON, of Schenectady, N. Y. It is formed of cast and wrought iron, and in addition to the requisite strength and durability necessary in such structures, has much beauty and neatness of style. A bridge on this plan has been constructed at Schenectady, and has been subjected to a severe test as to strength. According to a certificate, signed by the Mayor of Schenectady and others, this bridge, which is 72 feet span, and weighs 14½ tons, was first tried by putting on it 35 tons of iron, which was left there for two days. The weight was then increased to 42 tons, and left for thirty hours, when a careful examination was made of the effect produced on the bridge, and the result, as the gentlemen say, was, "that, although we think the test amply sufficient for a road bridge, yet we believe it falls far short of a full test of its ultimate strength." They add—"We consider it a strong, cheap and durable bridge, and that it may be made to span great lengths with sufficient strength for all bridging purposes, and the design is more beautiful than any one that has ever come under our notice." Messrs. CLUTE, of Schenectady, will furnish any particulars, or execute orders for this bridge.

DURABLE ROOFS.—Roofs of buildings, according to the Genesee Farmer, are now successfully made, by first covering with sheets of tarred paper, which is then covered with hot pitch, and with a coating of fine gravel while the pitch is hot. The cost is about the same as with shingles. Old and leaky roofs are cured by two successive coats of hot coal tar, each followed with a covering of sand, care being taken to introduce the tar into all the crevices.

PRESENTS TO ROYALTY.—We observe among the articles sent from Cincinnati to the World's Fair, a notice of a jar of preserved peaches for Queen Victoria, and a fine shirt for Prince Albert. Would it not look a little better, and less like worshipping rank and royalty, for plain republicans to confer their presents on eminent men of science, literature, or philanthropy, who may happen to have short purses, and there are many such?



Improved Seed Drill.

The accompanying cut is a representation of a seed drill, on which important improvements are said to have been made by LYMAN BICKFORD and HENRY HUFFMAN, of Macedon, Wayne county, N. Y. The cut gives a perspective view of the machine, with its external gearing, &c. It is said to operate with great accuracy, being readily governed as to the amount of seed sown; and is also recommended on account of its simplicity and completeness of construction. Particulars can be learned by addressing the persons above named.

The Horticultural Department.

CONDUCTED BY J. J. THOMAS, MACEDON, N. Y.

Pyramidal Pear Trees.

The following description, given in the Horticulturist, by its Editor, A. J. DOWNING, of the most perfect specimen, perhaps, of pyramidal training in existence, cannot fail to be interesting to all those who have a keen eye for seeing every thing done in the most perfect manner, and who are not satisfied with half-way performances of any kind. At the same time, the mode of pruning is so distinctly described as to possess much practical value.

The most beautiful sight, in the way of hardy fruit tree culture, that greeted our eyes last season, in Europe, was that of the Pyramidal Pear Trees in the *Jardin des Plantes*.

One side of this great national garden, which, with its parterres, schools and museums, is a vast collection of all that is interesting in Natural History, is a piece of ground of perhaps an acre, somewhat away from the principal walks. It is separated from the rest of the garden, (to which the public has the freest access,) by an iron railing and a gate, which is kept locked. This is the "school of pears"—that is to say, the garden in which MONSIEUR CAPPE, the head of the fruit department, has his house, and more especially his beautiful pear trees—to which he has given up almost the whole of the area allotted to him.

It was September when we were in this garden. We were weary with a day of sight-seeing, and a long ramble through the other different departments of the garden, and though very desirous of seeing M. CAPPE's trees, which have become rather famous as fine specimens of the art of pruning, and had come provided with a note to him which would open the iron gate where the trees of knowledge stood—we had almost determined before we reached it, that we would be content with a passing glance from the outside, at what we supposed would present a familiar appearance to our eyes.

But a passing glance through the iron railing soon made us feel that M. CAPPE was not a man to be neglected. And patiently we waited till one of the garcons had found him and delivered our note, in order that we might enter the now unclosed gate, and make the acquaintance of the master of pear trees.

We do not wish to depreciate the magnificent pictures in the Louvre, but we must still be allowed to say, that *in their way*, M. CAPPE's pear trees are as well worth seeing as any of the great master-pieces of art there. Nobody (with a soul) would think of comparing a POUSSIN with a pear tree, yet what one of POUSSIN's grand sylvan landscapes, (in which you can almost feel the tempest that sways the tops,) is to a landscape on a signboard, M. CAPPE's pyramidal pear trees are to the pear trees of common gardens, both in England and America.

Our readers must imagine a level plot of ground, marked off into beds or borders, about ten feet wide, with a narrow alley between. In a straight line in the middle of these beds stand the pear trees—about ten feet distant from each other. And such pear trees! so symmetrically shaped, forming perfect pyramids of foliage in the finest tapering lines from top to bottom; so healthy and luxuriant, with not a leaf nor branch wanting, and with the utmost possible vigor and beauty of growth, as if not "nice art" had educated them into this shape, but rather they had grown so because it was their nature, and they could not help it; and so laden all over with the finest and fairest fruit—golden, orange, dark bronze red, or tinted with the ruddiest tints of autumn; in short, so altogether the complete and perfect thing as garden pear trees, that we strongly suspect that good MONSIEUR CAPPE has a better understanding with mistress Pomona, than any of us, her Anglo devotees.

Cappé's Pyramidal Pear Tree.

We had a very interesting chat with M. CAPPE about the management of his trees, which we shall give the substance of for the benefit of our readers. We may say, in the first place,

that the climate of Paris is so much like our own, that any lesson in open air culture learned there, is worth twice as much as if learned in England. In fact, the pear tree grows but indifferently as an open standard in many parts of England—while M. CAPPE's trees, almost all of them, had made shoots at the ends of the branches, on all sides, about two feet in length. They had been planted from 10 to 18 years, and were from a dozen to eighteen feet high. None of them were on quince stocks—though Mr. C. admitted the value of the stocks for particular varieties. Neither does he practice root-pruning, but rather smiled at our account of the importance attached to it in England by some of the best cultivators—saying "it is all very well for a cold, moist country—but neither you nor us need it." His pear trees are all worked on pear stocks. They are planted in a good mellow loam—simply trenched two and a half feet deep, and about eight feet wide, and when they are loosened in the spring, the whole top of the border is formed into a hollow, shaped like a shallow pan, two or three inches deep. Over the surface of this is spread a mulching, an inch deep, of decomposed barn-yard manure—which not only shades and keeps the soil cool, but every time the rain falls and fills the basin containing this dressing or mulching of manure, it carries down to the roots their best food. It will be remembered that the soil of Paris is calcareous, and there is, probably, no lack of lime for the growth of the pear.

So much for general culture. Now a word as to *pruning*, which is the great point in which the French excel us—it being in short, the *education* of the tree. "Just as the twig is bent the tree's inclined."

M. CAPPE's method of pruning, which he was good enough to explain to us very clearly, is simple, and easily understood. Perhaps we should say it is easily explained with the knife in hand, and the tree before one. But as our thousands of readers are not within such convenient reach of the eye, we must do the best we can to make it clear by words.

M. CAPPE confines his pruning to three seasons of the year. In the month of March, or before the buds start, he shortens back with the knife all the leading shoots, fig. 2, *a. a.*—that is, the terminal shoots at the end of each side branch. Of course, this forces out not only a new leading shoot at the end of the branch, but side shoots, *b, b*, at various places on the lower part of the shoot. These side shoots are left to grow till the *end of May*. They have then pushed out to about four or five inches in length. The ends of all these side shoots are then *pinched off*, leaving only about an inch and a half at the bottom of the shoot.

Fig. 2.

Fig. 3, shows one of the branches, with the side shoots, as they are at the end of June. The dotted lines, *b, b*, show the point to which these shoots should be pinched off.

The terminal or leading shoot, *c*, is left entire, in order to draw up the sap, which would otherwise force all the side shoots into new growth. Notwithstanding this precaution, in luxuriant seasons the side shoots will frequently push out new shoots again, just below where they were pinched. This being the case, about *the last* of August M. CAPPE shortens back these new side shoots to about an inch and a half. But this time he does not pinch them off. He *breaks* them, and leaves the broken end for several days attached and hanging down, so that the flow of sap is not so suddenly checked as when the branch is pinched or cut off—and the danger of new shoots being forced out a third time is thereby effectually guarded against.

The object of this stopping the side branches, is to accumulate the sap, or, more properly, the organizable matter in these shortened branches, by which means the remaining buds become fruit-buds instead of wood-buds. They also become spurs, distributed over the whole tree, which bear regularly year after year—sending out new side side shoots, which are pinched back in the same manner every summer.

In order to keep the tre finely proportioned, the eye of the pruner must be a nice one, that he may, with a glance, regulate the pruning of the terminal branches or leaders, which as we have just said, are shortened back in March—for then is the time to adjust any extravagancies of growth which the tree may have run into, on either side: and in the summer the balance of growth is adjusted by pinching the side shoots that start out nearest the ends of the branches, quite short, say an inch and a half, while those that start near the bottom of the branch, (or the center of the tree,) where they have less nourishment, are left from four to five inches long.

Fig. 3.

Understanding this mode of pruning, nothing is easier than to form pyramidal pear trees of the most perfect symmetry and beauty of form. But in order to have the branches regularly produced from the ground to the summit, you must plant a tree which is only a couple of feet high, so that you can form the first tier of branches quite near the ground, by cutting back the leader at the very outset—for if the tree is once allowed to form a clean body or stem, of course it is impossible afterwards to give it the requisite shape and fullness of branches at the bottom.

Our readers will see that we are not giving this account for the benefit of our orchardists. It is a refinement in horticulture which belongs to the fruit garden—but which well repays the amateur or practical gardener, both by the increased fruitfulness and beauty of the trees. From the especially healthy condition of the trees in the *Jardin des Plantes*, as well as from other analogous instances, we are led to believe that by the fine clothing of foliage which protects the bark of the trunk and branches from the violence of the sun, these pyramidal trees will be found less liable to many diseases that attack the pear tree in climates like France and the United States, than when the trunks of the trees are fully exposed to the sun.

New Fruits.

The last annual report of the Fruit Committee of the Massachusetts Horticultural Society, gives the following results of the experiments in the culture of several new fruits of celebrity, in that region:—

NORTHERN SPY.—Specimens raised in Massachusetts were exhibited for the first time the past season. They appear to have been much inferior in size and quality to those raised in Western New-York. The results of a single season, and for the first year of bearing, are not however generally reliable.

DOYENNE BOUSSOCK.—This pear, which resembles the White Doyenne, but of larger size, has borne for several years, is highly commended by the Committee, and "appears to be worthy of extensive cultivation."

BEURRE D' ANJOU and PARADISE D' AUTOMNE—"fine pears, that do not appear to have received that attention from cultivators, to which they are justly entitled."

BEURRE LANGELIER—"gives promise of maintaining in this country its European reputation—a handsome fruit, of good size, yellow color, with a fine blush in the sun,—melting, juicy, and of an agreeable taste—whose season is January and February, though some of the specimens this year ripened in November."

Onondaga or Swan's Orange—"although not in the very first rank for excellence—different specimens varying much in quality,—its general good qualities, size, and beauty,—with the reputed productiveness, vigorous habit, and early bearing of the trees,—will, it is believed, render it worthy of an extended cultivation."

The Reine Claude de Bavay Plum—this new variety has excited a greal deal of attention—the Committee say of it, "it is a plum of medium size, of yellowish green color, and sweet pleasant flavor—a cling-stone, ripening late in the season, and keeping into October—thus far hardly maintaining the reputation that preceded its introduction."

Jenny's Seedling Strawberry.—"The plants are very hardy and productive; the berries very solid and heavy—when perfectly ripe, losing their acidity, and becoming very fine in flavor. In the opinion of your committee, it is a very estimable variety."

It appears that a very large number of new fruits, introduced under high names and with the highest recommendations, ultimately prove of no value. The committee arrive at the following very just conclusion:—"Upon the whole, it is believed that it will prove the best and safest course for beginners to make their selections from well known and established kinds; unless, in their estimation, the gratification of a desire for novelties,—an interest in watching the progress and development of some new varieties, and of contributing from their experience a share to the common stock of pomological knowledge—form a sufficient recompense for probably repeated disappointments."

Summer Pruning Hardy Grapes.

"Mr. Editor:—Will you please furnish a few plain and simple directions for pruning out-door hardy grapes, for one who has no experience in the matter—mine for some years past have been quite neglected, and neither the quantity nor the quality of the grapes are what I wish. R. D."

To suffer the rapid-growing American varieties of the grape, as the Isabella and Catawba, to grow without pruning or restraint, from a rich and well cultivated soil which all should have, is very much like planting a crop of corn so thick that no grain can ever be formed or properly matured in the midst of its profusion of stalks and leaves. A proper thinning by means of pruning becomes indispensible. To do this work right we must first understand distinctly what is wanted.

The grape bears its bunches of fruit on shoots of the present year's growth, which spring from buds on shoots of the previous year. If therefore, no pruning is given the vine, a profusion of shoots will interfere with each other's growth, and all will be weak and feeble; and the bunches of fruit will consequently be small, badly ripened and deficient in flavor. Hence the first requisite is to obtain a proper number of vigorous and evenly distributed shoots. For this purpose, let the vine be trained on the trellis as represented in Fig. 1, by extending two principal branches or arms each way horizontally, near the ground, from which spring upwards the fruit bearing shoots, distributed at regular intervals. When young

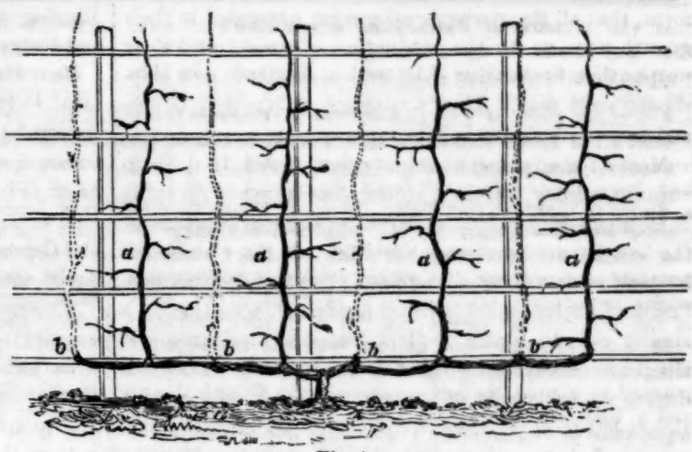


Fig. 1.

vines are planted this extension must be gradual, requiring some years to cover the intended surface; that is the pruning should be such that there may be first only two upright shoots, then four, then six, and so on, by successive years. If an old vine has been neglected, it must be pruned back in autumn or winter to a mere stump, leaving a few buds for new shoots, only two of which are to be allowed to grow for forming the horizontal arms.

After the trellis is covered as shown in Fig. 1, a regular annual crop is secured by the following management. The shoots *a. a. a. a.* are those of last year's growth, and the short side-shoots springing from them are those

Fig. 2.

of the present year which bear the fruit. A portion of one of these upright shoots is shown on an enlarged scale in Fig. 2,—A B, being the two years' wood, and the smaller side shoots with bunches of fruit, as *a*, *b*, those of the present year. While these are thus affording a crop the current season, provision must be made for the next. For this purpose, last years' bearing shoots were to be cut off to a bud each at *b. b. b. b*, (Fig. 1,) so that the strong, upright shoots shown by the dotted lines, shall be now growing for next year's bearers. These being the present year's wood, will of course bear fruit, but all the bunches must be removed as soon as they

form, that all the strength otherwise expended in their growth may go to the production of wood, until their proper time for bearing shall arrive, on their new side-shoots next year. Thus a constant alternation of one and two years shoots is kept up.

Most of the pruning already mentioned is done in autumn, winter, or early spring; but summer pruning is of much importance, if large, well-filled bunches of the best flavored grapes are desired. If the vine be left to itself after receiving its winter's pruning, a great profusion of useless wood will be produced, resulting in a similar evil to entire neglect, but less in degree. It should be occasionally examined, say twice a month during the early part of the summer, and only enough shoots left to cover the surface evenly at regular intervals; and also to allow at regular intervals the clear and unobstructed growth of the new uprights, shown by dotted lines in Fig. 1. The bunches of fruit must be reduced in number so that there may be only two on each side shoot; and after the bunches have well formed, the side-shoots are to be pinched or broken off as shown at the dotted line *c*, Fig. 2, so as to leave two or three joints above the upper bunch as at *a*. If allowed to run without pinching off, there will be too thick a growth of leaves and shoots; while on the other hand, if a sufficiency of leaves are not left, the fruit cannot well mature. For, it must never be forgotten, that the *full growth* and *perfect ripening* of the FRUIT, depends wholly on a *full supply of leaves, with a free admission of light and air for their healthy development*. Hence the entire error of the practice of picking off the leaves to let the light in on the fruit. And hence too, the longer the side shoots extend themselves before being nipped, provided they do not crowd or interfere with each other, the better matured will be the grapes.

These directions will not be new to experienced cultivators; but to beginners, from whom we have many inquiries on the subject, they may prove valuable.

Miscellaneous Items.

LARGE MARKET GARDEN.—The FITCHES, of Fulham, England, keep 12 horses in constant employment in marketing vegetables, drawing manure, &c., for their market garden. They employ 150 laborers in summer, and 70 in winter. So perfect is their culture, that a visitor asserted that he had not seen a weed on their whole 150 acres.

QUINCES ON THORNS.—W. BACON states in the Horticulturist, that some of the most beautiful quinces he has seen, grew on stocks of the common native thorn, the specimens being large, fair, and possessed of golden beauty. The stocks were an inch to an inch and a half in diameter, and were grafted about two feet high. These trees are less bushy, require less pruning, are more hardy, and are not liable to the attacks of the borer. The country abounds with thorn bushes, which may be thus changed to objects of beauty and usefulness.

HEDGES.—Some of the papers speak of fine hedges being made of the Siberian Crab. A drawback is its liability to the attacks of the mice. Even the Osage orange, it appears, has been injured by mice. The buckthorn, on account of its poisonous quality, appears to be proof against all attacks of the kind, at the same time that it is easily propagated, easily transplanted, needs clipping but once a year, and assumes a thick, dense, and hedgy growth.

THE DIANA GRAPE.—ROBERT HARWELL of Mobile, says, "The Diana Grape fruited with me this year, and is certainly the best grape I ever tasted. The vine is a strong grower and good bearer, and will suit this climate as well as we could desire. I had Catawba grapes ripe at the same time the Dianas were ripe, and although the Catawba is a most excellent grape, it cannot be compared with the Diana for fine flavor."—[Hort.]

VERBENAS.—A correspondent of Moore's New-Yorker, gives the following directions to make a verbena grow so as to be really a verbena. Remove the earth in the spring from a circle two and a half feet in diameter, and to a depth of one foot; then loosen the soil at the bottom thoroughly with a bar. Put in some well rotted fine manure as the earth is thrown back, rounding slightly the surface. In this bed set out a plant of *Robinson's Defiance*. Its splendor will repay the labor.

GOOD TREATMENT.—LINUS CONE, of Oakland county, Michigan, states in the Michigan Farmer, that there is now standing in his fruit garden a pear tree set a year ago last spring, when about as large as one's finger, and two feet high. It is now five inches in diameter, eight feet high, and the united length of the growth of the several branches last season, was fifty feet. No further explanation is needed than the simple fact that he is one of the most skillful culturists in that state.

SELLING FRUIT IN ILLINOIS.—The Prairie Farmer informs us that a man living near the Pecatonic river, who some years ago set out an orchard of seedling apples, giving them little care, sold the past season $400 worth of fruit from them; and another man on the same river, who selected good varieties and gave his trees good attention, sold fruit to the amount of $1,000. A. A. Hilliard, of Macoupin co., Ill., brought 60 bushels of peaches to Chicago merely as an experiment, and sold them for $2.50 per bushel. In the eastern cities they sold so low as scarcely to repay gathering.

Kill the Weeds.

If June is the season of flowers, it is equally the season of weeds. The soil has now become warmed, and the vital forces of nature, awakened from the dormancy of winter, are evinced in the speedy germination and rapid growth of all plants, whether favorable or unfavorable to the interest of the farmer and gardener.

Weeds should be destroyed as soon as they appear. The sooner they are attacked, the easier they are killed, the less injury they do to the crop, and the less they exhaust the soil. The mere brush of a hoe, or the scratch of a harrow, will effect more in the destruction of weeds which have just vegetated, than a much greater amount of labor applied after they have had time to extend their roots and become firmly fastened in the soil. The farmer and gardener should therefore begin with a determination to prevent, in the outset, the growth of everything injurious to crops, and they must follow up the warfare through the season, not only for the benefit of present, but future harvests; for there is no truer maxim in agriculture, than that "one year's seeding may make seven years weeding."

When the weather is dry, weeds are easily killed, in

their earlier stages, by being simply cut up or torn up, and left on the surface of the ground. In wet weather, or when weeds have obtained a larger size, they are more retentive of life, and though dug up and exposed to sunshine for a day or two, may take root and grow again if rain should then occur. Some weeds are much harder to destroy than others. Of those which grow in gardens and among cultivated crops the Purslane (*Portulacca oleracea,*) and the Goose-foot, called Pig-weed in some districts, (*Chenopodium album,*) are, perhaps, the most difficult to kill of *annual* weeds. It is, however, only on rich land that they grow with such strength as to become a serious obstruction to cultivation. Several species of annual grasses, as they grow on almost every kind of soil that is cultivated, may be considered greater enemies to the farmer.

In damp weather weeds are more effectually destroyed by being buried, than by being left on the surface; but the former mode requires more labor. In gardens, however, the additional labor is not important. It is common to rake the weeds together in bunches, and it is only necessary to dig small holes into which they may be pressed by the foot, and covered over with two inches of earth. Their abundant juices soon cause a rapid fermentation, and in a day or two they will be totally decomposed. Only a slight covering is required, as the heat generated in the weeds will soon destroy the vitality of all in the heap.

In field cultivation, the harrow and cultivator are good implements with which to kill weeds; but to do it to the best advantage, they should be started as soon as the weeds can be seen, and kept running as often as they appear, so long as the crop will admit of their passing without its being injured. In garden culture, the scuffler or Dutch hoe, is one of the best implements. Those which have an edge on each side of the plate, and are attached to the handle by rods curving upward, are best. The operator can work it either to or from him. It is generally *pushed* through the weeds, but if one happens to be missed by this motion, it is easily cut as the tool is brought back for a new push. Another advantage of this tool is, that it does not change the general surface of the ground, and does not disturb the roots of cultivated plants, while from the manner in which it cuts the weeds, they are more likely to die than if they had been taken up with all their roots. They are also easier to work than the common hoe, and can be used with less liability of packing the soil in wet weather.

A hand-plow may be used in gardens with advantage, and we have thought it singular that such an implement was not oftener seen. It should have a wheel in front, by which the motion of the plow is steadied, and its depth regulated. The frame may be fitted to receive tools of different shape, so that the soil may either be merely skimmed, or loosened and turned over, as desired. Two men, one to draw and the other to push and guide the implement, will go over more ground in a day than they could with hoes, and for many purposes the work would be done much better. The plow itself should be made of steel, as this metal will carry a much keener edge, and do more thorough execution among weeds, and will require less force to carry it through the soil than either wrought or cast-iron.

NEW PUBLICATIONS.

THE FRUIT GARDEN; a treatise intended to explain and illustrate the Physiology of Fruit Trees, the theory and practice of all operations connected with the propagation, transplanting, pruning and training of Orchard and Garden Trees, as standards, dwarfs, pyramids, espaliers, etc.; the laying out and arranging different kinds of Orchards and Gardens, the selection of suitable varieties for different purposes and localities, gathering and preserving fruits, treatment of Diseases, destruction of Insects, description and uses of Implements, etc.; illustrated with upwards of 150 figures, representing all practical operations, forms of Trees, designs for Plantations, Implements, etc. By P. BARRY, of Rochester, N. Y. Published by CHARLES SCRIBNER, New-York.

This is a handsome volume of about 400 pages, very neat in its mechanical execution, and in the appearance of its illustrations. We have not yet had an opportunity of making a thorough examination of its contents, and must therefore defer a more detailed notice. It is for sale by GRAY, SPRAGUE & Co., of this city.

NOTES ON NORTH AMERICA, Agricultural, Economical and Social. By JAMES F. W. JOHNSTON. Two vols. Boston: LITTLE & BROWN. Edinburgh and London: BLACKWOOD & SONS.

Most of our readers are aware that Professor JOHNSTON spent some time in the British Provinces and the United States, in the latter part of the year 1849 and early part of 1850. He delivered a valuable address at the Fair of the New-York State Ag. Society at Syracuse, and an interesting and instructive course of lectures for the same association, at Albany. These have been published, and have been extensively read by the people of this and other states. He also delivered courses of lectures at Boston and Washington. His opportunities for seeing the practical agriculture of the United States, were less favorable than they would have been if his visit had been at another season of the year. With the exception of the few days spent in this state about the time of the Fair, his time, from his first landing at Halifax, till about the first of January, was spent chiefly in New-Brunswick, having been engaged in making an agricultural survey of that Province. From Syracuse he went to Buffalo, by railroad, without delay, and from thence, by Niagara Falls he passed down Lake Ontario and the St. Lawrence to Lower Canada and New-Brunswick. He came to the States again in January; his lectures in this city were given in that month, and he left for England on the third day of April. His journey was extended as far to the south as Alexandria, Va.,—his route and mode of conveyance, in all cases, being that usually adopted by business travelers. This will show that he had comparatively little opportunity to study American agriculture, and will account for various mistakes into which he has fallen. His work is designed as a record of what passed under his observation during this visit. We cannot, at this time go into an extended analysis of it. Though designed, chiefly, for the British market, it will be found in many respects interesting to the American public, to whom we recommend its perusal. At the same time we cannot refrain from extracting the following sentence,

which will serve as a *key* to understanding some passages which will be likely to attract attention: "It is unpleasant to a stranger to be always called upon to admire and praise what he sees in a foreign country; and it is a part of the perversity of human nature to withhold, upon urgent request, what, if unasked, would have been freely and spontaneously given."

The work is for sale by LITTLE & Co., Albany.

THE POCKET COMPANION, for Machinists, Mechanics, and Engineers. By OLIVER BYRNE.

The author of the above work is known as the Editor of the Dictionary of Machines and Mechanics—Professor of Mathematics in the College of Civil Engineers, London, &c. The publishers are Messrs. DEWITT & DAVENPORT, Tribune Buildings, New-York. It contains a great amount of information of the most valuable kind, in reference to natural philosophy, mechanics, &c.—among which may be mentioned an Almanac for all time—past and future; a universal Thermometer, showing the sensible heat of many substances according to the three most approved thermometers; the most accurate Planetary tables; tonnage of Ships; the thickness of Water Pipes of Iron, Cast Iron, Copper, Lead, &c.; dilation of Solids by Heat; Wind and Windmills—pressure of the wind moving at given velocities; the Weights of different countries compared; Torsion, Twisting, and Cohesive Powers of Bodies; Alloys and Compounds; the Retardation of Railway Trains; Mechanical Powers, &c. &c., with many other things which we cannot notice here. It is for sale by P. L. GILBERT, of this city.

A PRACTICAL TREATISE on the Construction, Heating, and Ventilation of HOT-HOUSES; including Conservatories, Green-Houses, Graperies, and other kinds of Horticultural Structures; with practical directions for their management in regard to Light, Heat, and Air; illustrated with numerous engravings, by ROBERT B. LEUCHARS. Boston: JOHN P. JEWETT & Co.

This book is from the pen of a highly intelligent practical gardener, whose able contributions to the Horticulturist and other periodicals, have made him favorably known to the public. Mr. LEUCHARS has produced the best work on horticultural structures that has yet been offered to the American reader. His remarks in relation to constructing, lighting, heating, and ventilating hot-houses, based as they are on his own experience, are particularly valuable, and will be of great benefit to beginners in this branch of horticulture. It is a handsome volume of 366 pages, and is sold at the low price of one dollar.

THE WESTERN AGRICULTURIST.—This is the title of a monthly journal devoted to agriculture, published at Columbus, Ohio, edited by Professor W. W. MATHER, Corresponding Secretary of the Ohio State Board of Agriculture. Prof. M. has been favorably known to the public as a geologist of high standing, and his general knowledge of the sciences which relate to agriculture well enable him to impart much useful information through the periodical placed under his charge. Each number of the work contains thirty-two pages octavo. It is published by J. H. RILEY & Co., at one dollar a year, in advance.

ANSWERS TO INQUIRIES.

RAISING CHESTNUT TREES.—In answer to our request for information on the subject of raising chestnut trees from seed, we have received several communications, the most essential portions of which will be given to our readers in time to guide them in regard to the planting, which cannot be done till the next crop falls from the trees.

IRRIGATION.—"Have any of your correspondents had experience in irrigating side-hill land, of a light loamy texture, in winter and spring?" C. S., Shelburne, Mass. We think there can be no question that the irrigation of such land in *spring* would be beneficial, but should have doubts as to its expediency in winter. (See Col. Lincoln's communication on this subject, page 55 current volume.)

FIELD PEAS.—A. B. It is best to sow them as soon as the soil is in condition to be worked. Three bushels to the acre is the quantity usually preferred for seeding. They may be worked in with the cultivator or harrow, or buried with a small plow. The Canada field pea, and the Golden field pea, are considered the best varieties. The pea makes a valuable crop for early feeding, coming in before any other crop. As soon as the peas are fairly filled, the vines may be cut and fed to hogs in pens; or the hogs may be made to harvest the crop for themselves by fencing off, by boards or hurdles, a small part at a time, and allowing the hogs to gather all the peas before another piece is enclosed.

LEACHED ASHES AND MUCK.—"Will leached ashes that have laid for fifty years, and muck from a cedar swamp, make manure for grass-land and other land? The muck is of excellent quality. Would it be profitable to draw it on land by paying an Irishman $10 a month? distance not over fifty rods." The value of the ashes depends much on the situation in which they have laid for "fifty years." If they have been much spread about, and have been thoroughly leached by the rains, there is not, probably, much potash left in them—and potash is the essential element in decomposing the peat. But if, as you say, the peat "is of excellent quality," it may be worth applying as manure, by itself. But our advice would be to make three experiments. 1. Take equal quantities (say a cart-load each) of the peat and old ashes and mix intimately together, in a heap. 2. Put two loads of peat in another pile. Let these two piles lie till fall, and then apply them to equal portions of the same quality of soil, as a top-dressing for grass or wheat. 3. Apply the same quantity of the old ashes to the same quantity of land at the same time. Govern your future action by the results obtained in these cases. You can also try other experiments. This will be better than to hire the "Irishman at $10 a month," for much length of time, specially to do the work you propose. You will find it *will pay* to put the peat or muck into your barn-yards in sufficient quantity to absorb the urine and the liquids from the manure.

PAVING BARN-YARDS.—If your yards have an open, loose soil, paving or flagging, laid on a coating of clay, will prevent the waste of the liquids by soaking into the ground.

PLAN OF A BARN.—Various queries by W. D. S., Westchester, Pa. "In building a barn on a hill-side,

would it be policy to have a cellar under it for keeping manure?" Yes. "Which would be best, without reference to cost, a stone barn or wooden one?" Stone, on account of durability. "Will a barn built of stone, two stories high, with a cellar under it, be liable to fall, from the great height and weight of the walls?" Not if the work is properly done, any more than a house would that has a cellar under it. "Will manure keep in good order in a cellar, or under a tight roof?" There can be no better place for manure than a cellar—the low temperature and moisture, preserving it from waste by fermentation. Horse-manure, if mixed with a large quantity of straw, and if very dry, may heat and waste. If horses and cattle are both kept in the barn, mix the manure of each together by spreading, and it will not heat too much. It is a common practice to keep swine under a barn of this kind, on the manure; they mix it together and compress it sufficiently to prevent violent fermentation. Simply a tight roof, or even a close room, is not as good for keeping manure as a cellar, unless care is taken to keep it moist. If it becomes dry, it will lose its ammonia, even if it does not actually *heat*. In such a room, therefore, there should be some means of keeping it moist. Water may be turned on by a spout, from a pump or aqueduct. "If there is a cellar under the barn, how long will the floor last?" In some instances it has lasted twelve to fifteen years. There is no need of letting cattle run on the manure to tread it, if hogs are kept on it. (See Cultivator for June 1847, and November 1850.)

Draining for Grapevines.—J. T. C., Pikesville, Md. If your soil is, as you say, retentive of moisture, we should say, decidedly, that drainage would be beneficial to the production of grapes.

Ground Mice.—"Can you give me any plan by which I can rid my garden of ground mice?" S. M. T., Glen Cove. These animals can be destroyed by arsenic, in a similar way to that taken to kill rats by the same substance. That species of mice, however, feed mostly on grass-roots, vegetables and fruits; hence apples, potatoes, or something of that nature, would be most suitable for baiting them with the poison. Perhaps some one may know of a better mode of killing them. If so, they will confer a favor by communicating it.

Practical Work on Agricultural Chemistry.—"A Subscriber," Tompkins county, N. Y. If you have not Prof. Norton's "Elements of Agricultural Chemistry," we advise you to get that in the first place, and if you then require some other book on the subject, get Johnston's "Lectures on the Applications of Chemistry and Geology to Agriculture." They are both for sale here—the former at 50 cts., the latter at $1,25.

Best Strawberry.—"A Subscriber." Burr's *New Pine* has received the first premium of several Horticultural Societies, as the best variety, quality, size, and productiveness considered. It is also a firm fruit and will bear handling without injury.

Republican Extravagance.—The editor of the Home Journal tells us that on New Year's day, he saw ladies with "shawls, each one of which was the price of a farm; bracelets as costly; and minor articles of dress, each of which cost more than ten life-memberships to a Bible Society."

Mediterranean Wheat.

This wheat was introduced into the country chiefly on account of its peculiarity in resisting the attack of the Hessian fly. Its value in this respect arose from the sheath adhering very closely to the stem, which prevented the young worms from obtaining a lodgment where they would injure the plant. Besides this advantage, however, the Mediterranean wheat proved to be valuable in this country on account of its escaping the wheat-midge ("weevil.") Its exemption from injury from this insect is owing to its earliness—the grain being generally out the way by the time the fly makes its appearance. It is a variety that generally yields well, and is heavy in proportion to its measure. But an objection to it has been, that the millers were unwilling to pay as much for it, by four to six cents per bushel, as for the *white* wheats—the Mediterranean being a light red variety. Some experiments show that this wheat is not only of a highly nutritive quality, but that it is capable of making excellent flour. Wm. Craig states in the *Michigan Farmer* that he had sixteen barrels of superfine flour made from seventy-five bushels of this kind of wheat being at the rate of a barrel to four bushels and forty-one pounds. He says he sold some of it to a respectable baker in Detroit, without letting him know what kind of wheat it was made from, and requested him to say how he liked it. In a few weeks he received a line from the baker, saying—"The flour I like very much—how can I get more of it? *I think it is the best I ever had.*" Mr. C. says a neighbor told him that it took as much liquid to "wet up" two loaves from the flour of Mediterranean wheat, as it did to make three loaves from the white-flint.

To Farmers' Boys.

Eds. Cultivator—I am glad to see that you are willing to devote a portion of your excellent publication, for the benefit of farmers' boys. With your leave I would present the following, for the attention of your youthful readers:

For what reason is it that you farmers' boys, try so hard to come from your pleasant abode on the farm to the city, where all is anxiety and trouble?

> Would you be strong? go follow up the plow;
> What if it brings the sweat upon thy brow?
> Would'st live in the city? nothing there can charm;
> But come and live, in health and peace, upon a farm.

Boys, your future calling is one of the most healthy and pleasant of any. It is the most beneficial to mankind, and yet it is as little known (as a science) as any one business. You now learn the practice, but it would be well for you to learn the science also, of agriculture. In the absence of agricultural schools, the best way to learn this science, is to obtain *and read* some of the best agricultural books. "But this is Book Farming," methinks I hear you exclaim. Let us see if *book* farming can be useful. It is certain, that if any one of you should go to an elderly farmer, and ask him for information in regard to some subject connected with agriculture, he could, without doubt, give you much good advice, the benefits of which experience has taught him. This advice could easily be written and sent to the papers, where it would benefit not only yourselves but many others. It is true

that the writers of books often make great mistakes, but it is not very common for a farmer to make a mistake in giving advice; thus a farmer may deprecate corn cobs, either steamed or ground, as food for cattle or other live stock, while they are in reality an excellent feed. This tirade against book farming, therefore, must fall to the ground, for none but an ignorant or thoughtless person could sustain such an idea. One of the first things for you to learn is, what the different soils, crops, and manures are composed of, and this is to be done by means of such books as Johnston's Catechism of Agricultural Chemistry and Geology, Johnston's Agricultural Chemistry, Norton's Elements of Scientific Agriculture, and numerous others. Perhaps you say, "what is the use of all this science?" I answer, by agricultural chemistry we can find the component parts of a soil; we then find the component parts of the crop we wish to raise; we can then see what the soil lacks, to form the crop in perfection. Suppose, for instance, we find that there is not enough sulphuric acid in the land, why then we must find what manure will supply the deficiency. We then find the analyses of the different manures near at hand; some have very little or no sulphuric acid, but when we find the analyses of gypsum or plaster of Paris, we perceive that it is composed of 40 lbs. of sulphuric acid to 28½ lbs. of lime. In 68½ lbs. of gypsum, therefore, we find that this would be a good application. It is necessary that a farmer should know the composition of these substances. This can be illustrated in this way. Suppose any of you should turn baker, you would have to learn what the different kinds of cakes, pies, &c. were composed of; you would have to learn the proper proportion of each ingredient. In the same way you should know what all crops are composed of, as I said before, as well as manures and soils. The baker also, knows that if he would continue to make pies, cakes, &c. he must replenish his stock of flour, sugar, eggs, &c., the different ingredients of which they are made, for it would be folly for him to suppose that he could keep on making cakes, pies, &c., without replacing those substances into his flour barrel, sugar barrel, &c. In the same way a farmer must not expect to raise a crop without he returns the substances he takes from his land in the shape of crops. Now I think you can plainly see that chemistry is of great use to the farmer.

In learning from books you may come to something you cannot understand. If you do find anything you cannot comprehend, the best way for you to do, is to write to the editors of this paper, and they will probably either print it for some other person to answer, or else will answer it themselves. Boys, you can try experiments of various kinds. Thus, for example, your fathers often discuss the merits of thick and thin planting. It would be a good plan for you to get your father to allow you a small patch of ground, and then you can thoroughly pulverize the soil and put the proper manure on; then divide the patch into two equal parts; on one half you can sow wheat, barley, oats, or rye, broadcast, and on the other part you could sow it in distances of from two to six inches apart, according to your choice. If your patch is large enough you might try all the distances from two to six inches, as well as broadcast; but be sure to have all the divisions of a size, and you should be particular to give the grain in all the lots exactly the same treatment. When ripe, keep the lots separate and thrash them separately, and then measure each lot, and note down the particulars of the distance apart that the seed was sown, the size of the patch, the quantity of and kind of manure, also the quantity of seed obtained; then write the results for The Cultivator. These experiments can be varied in many ways.

In reading Johnston's Catechism I find that a soil "may be barren though it contains all the substances which plants require, if it contains a very large proportion of one, such as oxide of iron, which in great quantity is injurious to the soil." Then I would inquire what I should do to improve a soil in this condition? I find in the above work that "I should thorough drain and subsoil it, that the rains might sink through and wash out the injurious matter, and should lime it if it required lime." I will ask you, boys, if, when the rain washes out this injurious matter, it will not also wash out the good matter of the soil? I would be much obliged if some one would be kind enough to answer this question.

ONE WHO INTENDS TO BE A FARMER.

INVITATION.

BY SYLVANUS.

"If a man would eat, drink, die, and be forgotten, let his dwelling place be in the *city;* if he would live, love, and be remembered, let him speed him to the *glens of the mountains.*"—M'DONNOUGH.

From the city's strife and din, all ye weary Toilers come,
From the prison house of Care with its never ceasing hum,
From the moral desert flee to the beautiful and free
Land where Innocence and Glee, dwell together evermore.

To the land of beauty come, where in summer glades at eve,
Fairies sing with sylvan gods, while the balmy zephyrs grieve;
To the land of hill and dell, where the Muses love to dwell,
And in numbers sweet to tell tales of beauty evermore.

Where the tiny wavelets sing songs of joyfulness and glee,
While the birds on buoyant wing chant a chorus wild and free;
Where in soft Elysian bowers zephyrs woo the budding flowers,
Crowning with delight the hours, gliding stealthily away.

Here, in Nature's wide domain, Love and Beauty ever dwell,
Making bright each lonely cot, lighting up each sylvan dell;
Here before the face of Ill, Autumn's shade and Winter's chill,
Summer flowers are blooming still, shedding fragrance evermore!

Then ye toiling careworn Millions, leave the city's strife and din
Nature's storehouse lies before you, Nature bids you enter in;
Peace and plenty ye shall find, balms to soothe a wearied mind,
Care and Sorrow leave behind, Sin, Despair, and brooding Ill.

Come ye Toilers worn and weary, taste enjoyment pure and free,
Smiling Health awaits to greet ye when the brooklets sing with glee;
Where Aurora's golden train, flashing glory o'er the plain,
Waketh many a thrilling strain, bright and joyous, pure and free!

Then arise ye Sons of Labor, time shall bring thy sure reward,—
Soon the world shall own thee ruler, sovereign prince, and rightful lord;
Soon, for lo! thy morning star riseth proudly from afar,
Soon shall thy triumphal car crush Oppression's bloody throne!

April 19, 1851.

"WORM FENCES."—The common worm rail fence, causes snow to accumulate in the form of drifts, in large bodies. We notice that at a late discussion of the East Bloomfield Farmer's Club, (reported in the *Rural New-Yorker,*) Mr. IRA PECK estimated that the damage done to the wheat crop by the snow-drifts formed by those fences, was equal to one acre in thirty of all the wheat sown in that section.

NOTES FOR THE MONTH.

Acknowledgments.—Since or last, communications have been received from Dr. M. Barnes, Prof. J. P. Norton, Youth of Bridgewater, A Subscriber, Sylvanus, A Subscriber from Hannover, W. D. Sugar, W. C. A.

Books, Pamphlets, &c., have been received as follows: Notes on North America, Agricultural, Social and Economical, by Prof. J. F. W. Johnston, 2 vols. from Little & Co., booksellers, Albany.——Reports of Regents of the University, and of the Commissioners in charge of the publication of the Geological Reports, from Dr. T. R. Beck.——Proceedings of the Vermont Fruit Grower's Convention.

Our Premiums.—We have sent our dollar Premiums to all those who have informed us as to the particular book they wanted. It will be recollected that all Agents who have sent us fifteen or more subscribers for our current volume, except those whose names were published in our April No., as entitled to higher premiums, are entitled to Thomas' American Fruit Culturist, or such other dollar book as they may select. Those who have not received their books, are informed that we shall be glad to send them as soon as informed as to the particular book desired.

Messrs. Morris' and Vail's sales of Stock.—It will be recollected that the sales of these gentlemen take place this month—Mr. Morris' at Mount Fordham, Westchester county, N. Y., on the 24th, and Mr. Vail's at Troy, on the 26th. The particulars in regard to the herds of these gentlemen, will be found in their respective advertisements in this journal, and in their catalogues, which may be had on application to them, or at this office. These gentlemen have been at great expense in establishing their herds, and each have animals of great value. We shall look for large gatherings of farmers and stock raisers on the occasions alluded to.

Location of the next Fair of the New-York State Agricultural Society.—We learn from John Delafield, Esq., the President of the Society, that arrangements have been made for the occupancy of the "Rapids tract," so called, for the coming State Fair. Mr. D. says—"The ground is beautifully situated on the margin of the Genesee river, elevated about 100 feet above the stream, affording a beautiful view of the windings of the river. It is about a mile and a half south from the center of the city, (Rochester,) presenting a good firm sod, and an area of twenty-five acres or more." The Fair will be on the 17th, 18th and 19th of September.

Sulphate of Ammonia as Manure.—A remarkable fact in regard to the operation of this substance, is stated in a late English work. It was used as a top-dressing for grass-land, at the rate of two hundred pounds per acre. Its effects on the growth of grass were highly favorable; but its effects on the *quality* of the herbage were such that the *dairy farmer* is cautioned against the use of the substance on pasture land. It is stated to flavor the milk in such a way that it cannot be used; that the cream cracks, and will not mix with tea, and that the butter and butter-milk are disagreeably flavored.

National Park at Washington.—We are gratified to learn that the large tract of public ground, (about 140 acres,) on which the Smithsonian Institution and the Washington Monument are located, is about to be converted into a public park, under the direction and in pursuance of a plan reported to the Government by A. J. Downing, Esq., the well-known author, and editor of the Horticulturist. From Mr. Downing's good taste, sound judgment, and intimate practical knowledge of effective planting, we have reason to believe he will perform this duty in such a manner as to render this National Park one of the most attractive objects at the seat of our National Capitol. The climate of Washington is most favorable for the object—as it will permi the introduction of a large number of the most highly ornamental trees and plants, which would not stand the climate of any section of this state.

Professor Norton's Lectures.—We would invite the particular attention of young men who intend to become farmers, to Prof. Norton's Lectures on Scientific Agriculture, an advertisement in reference to which will be found in this number. The department to which Prof. N. is attached, belongs to Yale College; but those who attend the lectures are not necessarily connected with any other department of that institution, and no previous preparation is required. The principal points to which the lectures relate are as follows: "The substances of which the plant, the soil, and the animal consist, are shown and described. The cultivation of the soil, the qualities necessary to its fertility, the means of improving it by drainage, the composition and effect of the manures applied, are all topics of great interest, and naturally lead to the constitution of the crop, the theories of rotation, &c. The remaining department is that of the animal, the character of whose parts is given, and with this the various theories of fattening and feeding. In this part of the course the products of the soil are also examined, with a special reference to their nutritive and economical value."

We have before expressed our opinion in relation to Prof. Norton's abilities to give instruction on the applications of science to agriculture. Many of our readers have been long familiar with his writings which have appeared in this journal, and of the thousands who have read them, we have never heard any other expression than that of warm approbation. He has a happy faculty of adapting knowledge to useful purposes, and of rendering what, in the minds of some men is mysterious and uninteresting, plain and attractive. It is this, in connection with the self-evident utility which characterises his writings, that renders them so highly prized by the practical farmer. It will be seen that Prof. N. receives students at any time.

Budding Peach Trees.—Mr. C. D. Bent, of Hannibal, Oswego county, N. Y., informs us that scions of peach trees may be kept from the usual time of cutting them, till the bark of stocks will start, say in June,—and insert the buds in the usual way of budding. He states that they will grow as much the same season, as if they had been inserted the previous autumn. It is, of course, necessary that the scions should be kept in a cool and rather damp place.

IMPORTATION OF SHEEP.—WM. R. SANFORD, Esq., of Orwell, Vt., has lately returned from Europe, whither he had been for the purpose of procuring sheep which he deemed suitable for improving the Merino flocks of the United States. After a critical examination of all the flocks of note in Spain, France, and many of those of Saxony and other German states, he made a selection of twenty-five in Silesia, and two selections from flocks in France. In making his examinations and selections in Germany, he was accompanied by CHAS. L. FLEICHMANN, Esq., American consul at Stuttgard, whose intimate knowledge of the country, and acquaintance with the most distinguished sheep-breeders, was an important aid. We had the opportunity of seeing the lot purchased in Silesia, as Mr. S. passed here on his way to Vermont, and were well pleased with them. They are mostly of only one year old, and were, from the effects of their long confinement not in the best condition to *show;* but they have generally good forms, are uniform in appearance, and remarkably well covered with wool on all parts of the body. The staple is finer than that of most Merinos in this country, and at the same time the weight of fleece in proportion to the carcass appears large, especially in the ewes. The wool is *oily* but not *gummy*, and Mr. S. states that the average of the 600 head belonging to the flock from which these were selected, has been four pounds per fleece, clean washed. They are represented in the certificate received by Mr. S. of the breeder, as being *purely* descended from the Infantado Nigretti flock of Spain, a selection from which was taken to Silesia in the year 1811. The sheep purchased in France, are expected to arrive shortly. We understand that Messrs. E. HAMMOND, of Middlebury, R. T. HALL, and WM. REMILEE of Cornwall, Vt., are associated with Mr. SANFORD in these importations. Mr. S. informs us that he has purchased a Devon cow and heifer of Mr. GEORGE TURNER, Devonshire, England, which will come to this country in the course of the season.

MECHANICS' INSTITUTE.—This institution was founded in New-York, in 1831. Its object is the improvement of the mechanical classes by means of lectures, holding conversational meetings, debates and discussions, public exhibitions of specimens of mechanical productions, &c. It occupies a large building—comprising four floors, each containing 3,500 square feet—at the junction of Division-street and the Bowery. It has a large library and reading-room, and is fitted up on the general plan of the Polytechnic Institution in London. A steam engine has been erected for the purpose of showing the operation of new machinery. The exhibition was opened on the 15th May. It is designed to keep the exhibition constantly open, and it will afford an interesting and attractive place to persons who wish to obtain information in reference to mechanical philosophy. For particulars apply to THOS. C. DODD, Actuary.

YORK COUNTY, N. B., AG. SOCIETY.—This Society will hold its next show at Fredericton, on Tuesday and Wednesday, the 14th and 15th days of October next. Very liberal premiums are offered, embracing all kinds of live stock, and the principal agricultural products of the province. We are glad to see that the agriculture of this section is improving.

NEW-ENGLAND POULTRY SOCIETY.—By the second annual report of this society, it appears to be in a flourishing condition. The treasury has a balance on hand of upwards of $200. Vigorous preparations are in progress for another exhibition at Boston in November next, and the report gives a full account of the last. Attached to the document are several pages of cuts of fowls. Some of these represent well-known and valuable varieties; others belong to *newly invented* sorts which were brought out at the last show,—as "Imperial Chinese," "Wild Indian Mountain Fowl," "Bengal Mountain Game Fowl," "Burrampooter Fowl," &c. They are from the same *manufactory* as the "Plymouth-Rock Fowl," "Fawn-colored Dorking," "Yankee Game," "Pride of India Fowl," and "South American Eagle Fowl," which were advertised a year ago. From the ugliness of some of the figures, it might be supposed they were mere caricatures; but persons who have seen the *originals* will have no hesitation in admitting that they are quite truthful portraits, and the sight of them may be a useful warning against being deceived by the names.

FISH GUANO.—It will be seen that Messrs. EMERY & Co. offer for sale an article under this name, which, from all we can learn in regard to it, is likely to become of great importance. It has been very carefully analysed by Prof. NORTON, who deems it of excellent quality—"equal in value to medium qualities of [imported] guano." Mr. CHAS. ROBINSON, President of the New Haven county Horticultural Society, states that he tried it last year, on various plants, and its results were fully equal to Peruvian guano. We think it should have a careful trial on various soils, and should its effects be such as may be expected, it will have a great advantage in cheapness, over imported guano. Should the demand render it an object, it can be produced in very large quantities for future years.

MORGAN HORSES.—Mr. N. B. HOGG, of Newark, Ohio, has purchased of Mr. WIER, of Walpole, N. H., a mare and a three year colt, both got by the well known "Gifford Morgan." The mare, we understand, is the dam of the fine horse "Morgan Hunter," owned by Messrs. GILBERT & ACKLEY, of East Hamilton, Madison county, N. Y. We have not seen Mr. HOGG's horses, but have been informed that they show many of the good points of the Morgan stock, and we cannot doubt that they will be highly useful in improving the horses of the section to which they have been taken.

EXTRAORDINARY COW.—The Hereford cow which won the first prize at the last Birmingham show, was slaughtered a few months since, and her weight, as given in an English paper, was as follows: Live weight 2,356 lbs. Dressed weight—four quarters, 1,695—tallow, 198—hide, 85—total, 1,978 lbs. The heart weighed 7 lbs. and the head 32 lbs.

DEVON OXEN.—Oxen are less worked in English farming than formerly, but Devons, and in some instances Herefords, are still used to some extent. In a late report of the Agriculture of West-Norfolk, it is stated that Mr. HUDSON, of Castleacre, works sixteen Devon oxen, besides several pair of horses. The oxen work in pairs, the same as the horses, "and walk quite as quick-

ly, and in either plow or harrow, will get over as much ground as the horses—each plowman drives his own pair."

THE GREAT LONDON EXHIBITION.—Our latest accounts from this center of attraction, are of the date of May 3d. The "Crystal Palace" was opened on the first by the Queen in person, in the presence of 30,000 spectators. The arrangements appear to have been made in good order, and the display is represented to be magnificent. The packages which were received from foreign countries up to date of 28th April, amounted to 8,938, and 1,144 from British colonies. "The United States furnished 878 of the former; Belgium 1,039; France 2,913; Austria 631; Prussia 1,059; the remainder of Germany, 653; Italy 215; Holland 225; Portugal 105; Russia 250; Spain 228; Switzerland 152; Egypt 41, and Tunis 202. Only two packages have yet arrived from Turkey, and one from Persia. The delay in the arrival of the steamer from Constantinople is unaccounted for. China sends 231 packages, and Hong Kong 19; India 436; Australia and the neighboring colonies 126; the West Indies 52; the North American colonies 381; Africa and the Cape of Good Hope 45; and Malta 49."

The department of the show belonging to the United States, seems to be highly creditable, and is said to attract much attention—especially in reference to the *utilitarian* character of the articles. Our carriages and agricultural implements are particularly spoken of in terms of praise. Mr. JOHNSON, the agent from this state, and several agents from other states and associations were at London at the above date, but no communications particularly describing the exhibition have been as yet received from them.

NEW EDITION OF DANA'S "MUCK MANUAL."—We are glad to learn that a new and enlarged edition of this useful work is soon to be published. The former editions were exhausted, and we have heard many calls for it which could not be answered. It contains many directions in regard to the use of peat or muck as manure, which have been of great value to many farmers. By the advertisement of Mr. WALKER it will be seen that he has the work for sale.

LARGE PRODUCE OF WOOL.—We are informed that Messrs. E. T. & J. A. MILLER, of Hanover, N. H., had in 1850. 193 fleeces of wool from Merino sheep, which, when sold, weighed in the aggregate, 867 lbs., or an average of four pounds seven ounces and a fraction per fleece—and brought the aggregate sum of $379.14—or an average of $1.96 per fleece. Also, that JOHN CLEFLIN, of Lyme, N. H., has a flock of sheep which gave an average yield the same year, of four pounds ten ounces to the fleece, and sold for an average amount of $1.98 per fleece. We are not informed who was the purchaser of these lots of wool, but it is said "they were sold without the advantage of being sorted at a wool depot."

VERMONT SHEEP IN VIRGINIA.—We are informed that Mr. ALBERT CHAPMAN, of Middlebury, Vt., lately sold ten Merino ewes and a ram to Mr. THEODORE N. DAVIDSON, of Culpepper county, Va. We understand that the ram was bred by Mr. E. HAMMOND, of Middlebury, and that the ewes were bred by Mr. CHAPMAN. The flocks of both these gentlemen are well known as among the best in Vermont,—the sheep being generally of good constitution, and producing a good weight and quality of wool.

EGGS OF CHOICE FOWLS.—We have received from Dr. E. WIGHT, of Boston, some eggs of his very superior Dorking fowls; also from Mr. A. A. ANDREWS, of Boston, eggs from his "White Shanghae" fowls, which we regard as among the very *best* of the larger class of fowls that have been exhibited at the Boston poultry shows, or that we have ever seen elsewhere. We spoke of them in our December No. for last year.

Messrs. W. G. & G. A. YOUNG, of Kirkland, Oneida county, have purchased of Mr. NAHUM KNIGHT, of Baltimore, Vt., a horse got by "Green Mountain Morgan." He is a muscular, short-jointed horse, apparently of good constitution, strong and hardy. Messrs. YOUNG have certificates in regard to the value of his progeny, from several respectable gentlemen in the neighborhood where the horse has been kept.

HEREFORD CATTLE FOR OTSEGO COUNTY.—We learn that Mr. J. A. DAVIS, of Morris, Otsego county, has purchased of Mr. EDWARD WELLS, of Johnstown, a bull and cow of the Hereford breed. They are fine animals, entirely of the stock imported from England by Mr. SOTHAM, and we are glad they have gone into good hands, in one of our best breeding districts. They will prove a valuable stock.

DEEP AND SHALLOW DRAINING.—Gen. Cushing stated at one of the Boston Agricultural meetings, that when draining was first introduced into Scotland, the drains were made about one and a half to two feet deep, and about 18 feet apart. After 10,000 miles were laid, it was found that they were not sufficient. Then they were made from two and a half to three feet deep, and forty feet apart. This system cost less, and was more efficient. Greater depth with greater distance, was again unfavorable.

BRUSH DRAINS.—Where stones are scarce, and tiles not easily obtained, brush drains are an excellent substitute. They are, in fact, the cheapest of all kinds of underdrains, on account of the rapidity with which they may be filled. The brush, being excluded from the air, will last a long time. Judge Buel's were found after 20 years, apparently as good as when made.

EXTENSIVE FARMING.—Downing says that a large part of the estate of the Duke of Bedford is let out to tenants, but still he retains a large portion under his own superintendence, and pays, himself, more than 400 laborers weekly throughout the year. Above fifty miles of drain have been laid, annually, on his grounds, for several years past.

SOUTHERN PRICES OF CATTLE.—Dr. Lee states that ordinary cows sell in Georgia at from $6 to $10 per head, and extraordinary ones bring readily from $50 to $150 each. "We saw a native cow sold at the latter price at the [Georgia] State Fair in 1849, not so good as we have bought in Erie county for $13."

LARGE CROP OF HAY.—JEREMIAH RYAN, of Putney, received the premium of the Windsor County (Vt.) Agricultural Society, for the best crop of hay, the amount being *five tons*, including the second crop or after-growth.

Albany Prices Current.

Albany, May 14, 1851.

The markets for produce of almost all descriptions, have opened very active, and in Breadstuffs the quotations show a gradually declining market, influenced altogether by the large receipts from this State and the West. FLOUR, for the common descriptions of State and Western, rules very low, with a prospect of a still further decline. WHEAT has followed Flour, and the anticipations that Genesee from its relative scarcity would maintain its price, have not been realized. CORN continues in large supply, and quotations since the opening of the canal have steadily receded; the receipts in prospect are very large, and it is not easy to perceive how present prices can be maintained, in the absence of a shipping demand, which at present is by no means active, and in no respect equal to the increased receipts over the corresponding period last year. PROVISIONS of all kinds, barrelled and cut, notwithstanding the advancing rates of quotations, continue in good demand; the retail trade here has been very active.

The prospects of the growing crops, in all parts of the Union, with some slight exceptions, are very good.

FLOUR.—The sales of flour during the month have reached 28,000 to 30,000 bbls., principally to the city trade and to Eastern and river buyers. Quotations under the influence of large receipts, have gradually declined, and the market closes heavy, with a downward tendency, at $4a$4.12½ for mixed and straight Michigan and State,—$4.25a$4.37½ for Northern and Southern Ohio and fresh ground State —$4.50a4.62½ for Genesee,—$4.75a$5 for fancy Genesee and Extra Ohio, and $5a$5.25 for extra Genesee. The steamship Cambria with advices from Liverpool to 3d inst. quotes American flour steady at 17s. 6da19s., for Western Canal,—18a20s. for Canadian and 19a20s. for Ohio. These are very low figures, lower than they have been for years.

GRAIN.—The supply of prime Genesee wheat in store at the opening of canal was very limited, and the arrivals since the opening have been very light; the aggregate is 33,000 or 34,000 bushels prime Genesee, ranging from 113a115c; at the lower figure a sale was made yesterday; the ordinary descriptions of Western are unsaleable in this market, and our sales include only 4,800 bushels at 104c. for Michigan, and 103 for a parcel of ordinary Genesee and Mediterranean mixed. Rye has been in demand beyond the supply, and prices are firmly maintained; sales 20,600 bushels, at 72a73c. Oats have been in limited supply, and a good demand has carried the market from 44a45c. at the opening, to 48, at which the market yesterday closed firm; the sales are 118,000 bushels. Corn has been in very active demand for the East, and to fill contracts, and prices at the opening of the canal were quoted at 62a63c. for Yellow round, and 62 for Western mixed, which under the influence of large receipts present and in prospect, and the unfavorable European advices, closed yesterday at 57c. for Yellow mixed and round White, and 55½ for Western mixed, the market showing more steadiness than it had evinced for some days; the agregate sales have been 375,000 bushels. In Barley we have not much to notice; sales 7,000 to 8,000 bushels in lots, at 106a110c.; sales have also been made of the new crop to the extent of 50,000 bushels, on private terms. Malt is in good demand at $1.25 with sales.

FEED.—Owing to the advancing quotations in oats, and a moderate supply, has been well sustained; sales 40,000 bushels at 18a24 for second quality, and 100a106½ for middlings.

HOPS.—A fair retail demand: sales 80 bales old and new, at 30c.

WOOL.—The stock here has been exhausted for some time; we notice sales 4,000 lbs., at 36½ for No. 1, and 40c. for superfine.

WHISKEY—is in steady demand beyond the daily supply; the sales are 600 to 700 bbls. at 23a24c. for S. P., and 23 for Ohio, closing with a bare market, and nominally 23½ and 23½c.

SEED.—There has been a fair retail demand at 10½c for large clover, and 9a9½ for medium. Timothy ranged from $2.25a$3.12½.

PROVISIONS.—The sales include 100 bbls. prime beef city packed at $7; 280 tierces Western Hams in pickle at 8½a9c., 16,000 lbs. Western Smoked Shoulders at 7½c., 100 bls. do. in canvass at 7½c, and 28 bbls. Lard at 10c. The retail demand has been very good and quotations may be given at $16 for mess Pork, $14 for do. prime, $10.50 for mess Beef and $8 50 for do. prime. Smoked Hams, 10c., do. Shoulders, 8c.; Smoked Beef, 9c.; Lard, 10½c.; Butter, 10a12c. for old State and 14a16c. for new do.; Cheese, 7c.

LOCUST BORER.—A correspondent of the Genesee Farmer says that he destroyed the borer and restored a favorite tree, by thrusting smoking tobacco into the holes made by the insect, by means of a knitting needle. The operation was repeated in successive years.

COMPARATIVE ROTTING OF POTATOES.—According to the experiments of S. W. COLE of the New-England Farmer, the different varieties of the potato rotted the past unfavorable season, in the following proportions:—

Chenango or Mercer, seven-ninths of the crop rotted.
Carter, five-sixths.
Snowball, (resembling Carter,) all.
Early Purple, one-seventeenth.
Hall's Early, one-half.
Early Worcester or Riley, one-third.
Buffalo Pink, two-thirds.
Wait's Long, four-fifths.
Long Red, Merino, or Long John, two-thirds.
Dear, Veto, or Abington Blues, seven-elevenths.
Black, or Black Chenango, one-fifth.

The Early Purple very nearly escaped, probably from its great earliness.

METHOD AND ORDER.—Habits of order and discipline result in the highest advantage to rural cultivation, even when brought from far different pursuits. Pope said of Lord Peterborough,

> Even he whose lightnings pierced the Iberian lines,
> Now forms my quincunx, and now ranks my vines;

and Washington when called from Mount Vernon to the presidency, left full directions to his manager in writing, and required of him a weekly report, giving a minute account of all the operations of the farm, the appearance of crops, condition of animals, &c. If habits of discipline as applied to the art of destruction, may be thus turned about to good account, how much better would it be to cultivate discipline as directly applied to the great art of peace, the cultivation of the soil.

CRANBERRIES ON UPLAND.—A writer in the *Massachusetts Plowman* thinks the cultivation of this fruit on upland or dryland, cannot be carried on with advantage. He says—"It is evidently a fruit that delights in a wet location, and it is to be doubted if it has that nature to live, flourish, and bear equally well in a dry location. Even in the last *wet* season, I found this fruit in a more flourishing and perfect condition in the lower parts of the meadow, than on the higher.

Prouty & Mears' Celebrated Centre Draught Plows.

A LARGE assortment can be found at the State Agricultural Warehouse, No. 25 Cliff street, New-York.
June 1—4t. G. H. BARR.

FARM FOR SALE.

THE subscriber offers for sale 350 acres of land, situated four miles north of Chimney Point Steamboat Landing, on the east shore of Lake Champlain, and ten miles from the Vergennes Railroad depot. The farm is well watered, and has a sufficient quantity of Pine timber to keep it in fence for many years, and a surplus of fire wood. The house is comfortable; the barns, six in number, some new and all in good repair. There are two orchards, which produce grafted fruit of the best varieties. The farm will recommend itself to any one who will take the trouble to inspect it. Also, for sale one thousand good Merino sheep. JONAS N. SMITH.
Chimney Point, Vt., June 1, 1851—2t.

BLACK HAWK.

FOR SALE at Ticonderaga, Essex county, New-York, a desirable Stallion Colt, sired by the justly celebrated original Black Hawk, now owned by Messrs. Hill, Bridport, Vt. Color, dark brown, black legs, mane and tail—will be three years old in June, is 15½ hands high—weighs about 1000 lbs.—strongly made and well proportioned—kind to handle, broke to harness, and shows good action. Those wishing to purchase can examine said colt at the stable of the subscriber. WM. E. CALKINS, Ticonderaga, May 26—1t.

New York Agricultural Warehouse and Seed Store.

A. B. ALLEN & CO., 189 and 191 Water street, New York.
Fresh Garden Seeds, a large assortment of the various kinds. Also, Field Seeds.
Lawn and other grasses.
Horticultural and Garden Implements. The best and greatest variety for sale in the United States. Plows, Spades, Hoes, &c &c.
Guano, Bone Dust, Poudrette, and other fertilizers
Prompt attention given to all orders by letter or otherwise.
March 1—tf.

Morgan Hunter and Morgan Chief.

MORGAN HUNTER will stand the coming season at the stable of S. A. Gilbert, East Hamilton. Terms, $10.00 to insure. This fine horse is seven years old; was bred in Springfield, Vt.; got by Gifford Morgan; dam by the same horse, thus possessing more of the blood of the Gifford Morgan than any other horse now living. For figure and description, see Cultivator for 1849, p. 216.

MORGAN CHIEF will be four years old on the 18th of June next. He is a superior colt; was got by Gifford Morgan, dam by Green Mountain Morgan. He will stand at the stable of H. R. Ackley. Terms, $10.00 to insure. See Cultivator for 1849, p. 67.

June 1—2t. ACKLEY & GILBERT.

Morgan Horse Young Gifford.

THIS splendid colt will be kept at the stable of the subscriber the coming season, for a few mares only. Young Gifford will be three years old in June next; in color chestnut; was bred in Walpole, N. H., by F. A. Wier; got by Gifford Morgan, dam by Sherman Morgan, thus possessing the blood of the best Morgan Stallions on record. In color, form and action, he closely resembles his illustrious sire. Terms, $10.00 to insure. Good pasturage furnished; accident and escape at the risk of the owner. S. A. GILBERT

East Hamilton, Madison Co., N. Y., June 1—2t.

SIR HENRY ECLIPSE

WILL stand in the city of Albany, at the stable of Wm. W. Woolford, 157 Washington-street, as follows: Five dollars single service, ten dollars the season—insured by agreement. Season to commence the first of May and end the 15th of July. Admirers of good horses are invited to examine for themselves.

PEDIGREE.—His grand sire was the noted horse Sir Henry, imported; his sire the McKinney Henry; his dam from Morgan descent; and in point of beauty and endurance, could not be excelled in the land. Sir Henry stands full seventeen hands, is a dark chestnut, and weighs about 1,400 lbs., and is a perfect model of a horse. He challenges the land for comparison of stock, and is the horse that was awarded the first premium at Buffalo when three years old, and is coming six years old this May. JOHN D. SPINNER.

June 1—2t

EMERY & CO.'S
New-York State Agricultural Society's
FIRST PREMIUM
RAILROAD HORSE POWER,
AND
OVERSHOT THRESHER AND SEPARATOR.

THE attention of the farming public is solicited to the newly improved Railroad Horse Power, as now made by the subscribers. Also to their Over-Shot Spike Cylinder Threshers, with Vibrating and Revolving Separators.

Having had much experience in the sale and manufacture of Horse Powers and other Agricultural Implements; and being acquainted very extensively with the wants of the farmers of this country, as well as the character of most of the implements and machines now in use, we think we hazard nothing in pronouncing our latest improved Power far superior to any before made or sold by us, or with which we are acquainted.

At the late Fair of the New-York State Agricultural Society, held at Albany, their committee on Horse Powers unanimously awarded us the highest premium for the best Railroad Horse Power, among the large number of the most popular and approved kinds of the day, which were on exhibition and competition,—it being considered the most efficient and durable on the ground.

As the principal mechanical parts of its construction differ so materially from those mostly sold by us previously to the past season, as well as from all others now in use, we have thought it an object to the farmers, as well as for our own interest, to illustrate them by cuts and descriptions, as shown in Cultivator for last month, [April] The advantages of the recently adopted improvement are numerous and plainly seen, one of which is removing all the gearing and wearing parts to the outside of the power, where it is free from dust and dirt, &c., and where it may be boxed up, requiring little time or oil to keep them in the best possible running order.

The liability of breakage and wear, and slipping of links and pinions, as in the rack and pinion powers, (and most others) is wholly removed In shipping them, the gears are taken off and packed in a box with other things.

Having sold a large number of the IMPROVED Machines the past harvest, all of which, having given entire satisfaction, and when used side by side with the most approved of other kinds, having been preferred, we do not hesitate to recommend and warrant them equal, if not superior, to any before made or sold by us, or of which we have any knowledge.

Our Thresher consists of a small spiked cylinder, about fifteen inches in diameter, and twenty-six inches long, with a substantial spiked concave above this cylinder, which is adjustable to the work to be done. The feeding table being level, allows the feeder to stand erect, and is little annoyed with dust and dirt—and no possibility of hard substances getting into the Thresher, to its injury.

We attach a vibrating or revolving separator to them, which serves to separate all the grain from the straw, and leave it with the fine chaff for fanning mill, while the straw is carried off for stacking.

Having heretofore been obliged to have a large portion of some parts of our work done by contract, we have felt the inconvenience and want of dependance to be placed upon the quality of materials and workmanship; we have now so extended our facilities, as to enable us to make all parts of all our own machines, and can now assure the public that none but the best work and stock will be offered by us.

The Two Horse Power Thresher and Separator is capable, with three or four men, of threshing from 150 to 200 bushels of wheat or rye, and the single one from 60 to 100 bushels, or double that quantity of oats per day.

The price for Emery & Co.'s one Horse Power,.. $85 00
do do Thresher and Separator,. 35 00
do Bands, wrench, oiler and extra pieces,. 5 00—$125 00
do Two Horse Power,..... 110 00
do do Thresher and Separator,.. 35 00
do Bands, oiler, wrench, &c.,..... 5 00—$150 00
Price of Emery's Thresher and Cleaner, with bands, wrenches, &c.,..... $75 00
do Saw Mill, complete for use,..... $35 00
Price of Grant's Fan Mills, adapted for hand or Power, from .. .. $22 to $28 00

Also Wheeler's Rack and Pinion Power, manufactured by ourselves, and warranted equal to any of the kind in use, for made and sold by any other manufacturer,] which we sell with a full guarantee of the right of using same, in any territory of the United States, for the following prices,

One Horse Power,..... ..... $75
Two Horse Power,..... 100

The Threshers not being patented are same as above quoted.

All the above are subject to the warranty of three months use and trial and if not satisfactory may be returned and full purchase money refunded.

For further particulars see Illustrated Catalogue, furnished gratis on application to EMERY & CO.

Original and sole Proprietors of the Albany Agricultural Works, Warehouse and Seed Store, No. 369, 371, Broadway, Albany, N. Y.

HAMILTONIAN.

THIS celebrated horse will stand at the stable of G. A. Austin, in Orwell, Addison Co. Vt. Season commencing 1st of May, and ending in September.

This beautiful horse is 16 hands high; his color a dark bay; age 12 years in June 1851. He is the oldest and best blooded Hamiltonian now living, and has sired more roadsters and fast trotters than any other horse in the State. The fastest trotting Mare in Vermont was sired by him. She can go her mile in 2.40. The fastest trotting Stallion in Vermont is also a Hamiltonian. In addition to his blood qualities of speed and endurance, his unequalled success in producing roadsters consists in his great strength, and the peculiar formation of his limbs, his large forehead and deep quarters in which he excells. This horse took the first premium at the Rutland County Fair, held in Castleton in September, 1846. His stock is unsurpassed, and is in great demand. Several of his colts have been sold for $300 to $750 each. Some of his stock can be seen on the premises.

I have in my possession a great variety of letters from different persons relative to this horse, but as they are all of the same tenor the following will serve as a sample of the whole. It is from Fitch Clark, a gentleman who has probably taken more horses to market than any other man of his age in the State:

PAWLET, March 31, 1851.

Dear Sir—I can say more for the HAMILTONIAN horses than for any other of my acquaintance. I have had a great number of them, and they meet with a more ready sale than any other breed I have ever dealt in. I think the horse you have is the best blooded Hamiltonian now living. I have had a number of his colts. They were all fast. The bay mare I purchased of Joshua Hulett, (which you know was sired by him,) went in Albany in 2.46.

Respectfully yours, FITCH CLARK

Besides this, I have any number of letters from the best judges, which can be seen by those who are not acquainted with the stock of the Hamiltonian. I have also several colts of his on the premises, which will speak for themselves. They are not only roadsters, but sufficiently large for the plow &c.

PEDIGREE.

Hamiltonian is a grandson of the renowned Hamiltonian, owned by the late Isaac Bishop of Granville, Washington County, N. Y. Mr. Bishop purchased him at 3 years old for $1000, and he won for his owner, the same fall, in a match for $1000. Hamiltonian was sired by old Messenger, dam Miller's Maid. He was own brother to Membrino, that sired Betsey Baker, and the fastest trotting nags of the day. Terms six dollars the season.

Orwell, Vermont, June 1, 1851—1t.

Kinderhook Wool Depot.

THE subscribers will continue to receive and seel WOOL on Commission. From long experience, an extensive acquaintance with manufacturers, close application, and increased facilities for transacting business, they hope to give satisfaction to those who may favor them with consignments.

All who desire it can have their clips kept separate.

Sales will be made invariably for CASH.

The charges for receiving, sorting and selling will be ONE AND A HALF CENTS PER POUND, and insurance, which will be at the rate of 25 cents on $100 worth of Wool for each term of three months or under.

It will be observed by our terms for selling, &c., that we we have returned to the price charged the first year this enterprize was established. The experience of the past two years has fully proved that the proprietors cannot be adequately compensated for their labor and expenses, at the rate recently charged; consequently they have advanced the commission for selling to the price above mentioned.

Kinderhook, April 1, 1851. H. BLANCHARD & CO.

Important to Wool Growers.

I PROPOSE to sell twenty-five pure Pauler Merino Ewes, with Lamb, by a French Merino Buck, purchased of A. L. Bingham of Vt.; also twenty-five yearling Ewes, from my Pauler Ewes and French Buck; also a few choice Bucks. My flock originated from *R. V. R. Horton's flock, Rutland county, Vt. I purchased eleven Ewes and one Buck in the winter of forty-five; I have also had Bucks of Avery of Saratoga, at different times. I will sell at prices within the reach of common Farmers

Otisco, May 1—2t. N. H. NOYES.

P. S.—Any one wishing to get some good sheep could satisfy themselves by calling at shearing time. Any information wanted address N. H. Noyes, Otisco, Onondaga county.

* A description of Mr. H.'s sheep can be found in the vol. of the Cultivator published in forty-five and six.

I. T. GRANT & CO'S

Patent Fan Mills and Grain Cradles.

WE continue to manufacture these Celebrated Mills and Cradles. Our Mills have been awarded seven First Premiums at the New-York State Fairs—three Silver Medals at the great American Institute in New-York—also at the State Fairs of Pennsylvania, Maryland, Michigan and Ohio, and at a large number of County Fairs. They have never been awarded the second premium—always the first, and they stand without a rival. We feel confident in recommending them as the best in market.

Our CRADLES have taken the First Premiums at two New-York State Fairs. We have made valuable improvements on them the last year, for which we have letters patent. They can be taken apart and packed in boxes, and put together again, with very little trouble, by almost any one.

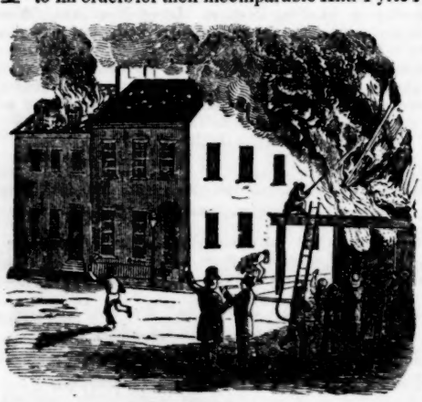
Orders solicited from, and work sent to any part of the United States. I. T. GRANT & CO.

May 1—e.o.m.—6t. Junction P. O., Rens. Co., N. Y.

Anti-Pyric Paint, Fire, Weather, and Water Proof.

Manufactured by THE NEW-YORK ANTI-PYRIC PAINT COMPANY, for the roofs of Dwellings, Warehouses, Bridges, Fences, and all Articles that require Protection from Fire, Weather, or Water.

TO THE PUBLIC.—The Anti-Pyric Paint Company are prepared to fill orders for their incomparable Anti-Pyric Paint. They wish



it to be distinctly understood, that their Paint is distinctfrom any of the various *ground rocks, slates, clay or mud*, which are puffed and sjod in the market as fire proof paint. The Paint offered by this Company is manufactured from proper materials only, scientifically prepared and combined and as such it is offered to the public, with the full assurance that in its protective properties against Fire and the Elements, it is superior to any article ever used in the form of Paint; and that, after all the earths and native Paints, (so called) have had their day and failed, the Anti-Pyric Paint alone will maintain its reputation as a perfect protection against the weather, falling sparks or cinders, and a not too immoderate heat from the direct action of Fire. It has no deleterious articles in it, will not crack, peel off, or wash away, but hardens by time and becomes permanent and imperishable by age! Thousands have used it for the last three years without a single failure.

Constantly on hand and for sale at the Depot of the Company, by GEO. G. SHEPPARD, their sole agent, 187 Water street, New-York, where may be had Certificates of its qualities, and full directions for using it. May 1—2t.

Lawrence Scientific School,

Harvard University, Cambridge, Massachusetts.

SPECIAL STUDENTS attend daily, from 9 o'clock, A. M., till 5 o'clock, P. M., in the Laboratories, and under the direction of the following Professors:

LOUIS AGASSIZ, LL.D., Professor of Geology and Zoology.

JEFFREYS WYMAN, M. D., Professor of Comparative Anatomy and Physiology.

HENRY L. EUSTIS, A. M., Professor of Engineering.

EBEN NORTON HORSFORD, A. M., Professor of Chemistry.

Instruction is also given by Professor PIERCE in Mathematics, Prof. LOVERING in Physics, and the Messrs. BOND at the Astronomical Observatory.

All lectures delivered to the undergraduates of the College, are free to members of the Scientific School. For further information apply to E. N. HORSFORD, Dean of the Faculty.

May 1, 1851—3t.

PARKER & WHITE,

MANUFACTURERS of *Garden Implements and Farm Machines*, and growers and Importers of SEEDS and TREES, 8 and 10 Gerrish Block, Blackstone-st., Boston. April 1—tf.

POUDRETTE.

THE Lodi Manufacturing Company offer their Poudrette for sale at their usual prices, viz: $1.50 per barrel, for any quantity over six barrels, delivered free of cartage on board of vessel, in the city of New-York. The article offered this year for sale, will have the advantage of being freshly manufactured.

☞ The company's office is 74 Cortland Street, New-York city, a few doors from the ferry. Address "THE LODI MANUFACTURING COMPANY, NEW-YORK," *post-paid*. April 1, 1851—3t.

The American Live Stock Insurance Company,

At Vincennes, Indiana.

CHARTER unlimited. Granted January 2, 1850. ☞Capital $50,000'☜ For the Insurance of *HORSES, MULES, PRIZE BULLS, SHEEP AND CATTLE*, of every description, against the combined risks of *Fire, Water, Accidents and Disease.*

Losses paid in 30 days after proof of death.

Directors.—Joseph G. Bowman, Hiram Decker, M. D., Isaac Moss, George D. Hay, John Wise, Alvin W. Tracy, Hon. Abner T. Ellis, Abm. Smith, Hon Thomas Bishop. Joseph G. Bowman, *President*. B. S. Whitney, *Secretary*. Wm. Burtch, *Trasurer*.

Aug. 1, 1850—1yr. B. P. JOHNSON, Agent, Albany.

United States Agricultural Warehouse and Seed Store, No. 197 Water-street, New-York.

JOHN MAYHER & Co.

THE Subscribers, Manufacturers of, and Dealers in, Agricultura Implements, would inform the public that they keep constantly on hand, and offer sale, the largest and most complete assortment of Agricultural and Horticultural Implements, Field and Garden Seeds, in the United States, among which may be found the following:

Plows—Upwards of 150 different patterns and sizes, adapted to all the different kinds of soil and modes of culture, among which may be found the genuine Eagle Improved Plow, which has taken the Premium wherever exhibited or tested.

Harrows—Of all kinds and sizes.

Corn Planters—Different kinds and sizes, to work by man or horse.

Seed Sowers—A great variety, that will plant all kinds of grain and seed at any required distance.

Cultivators—A large and varied assortment.

Water Rams—Self-acting, of various sizes, with all the late improvements.

Chain Pumps—Complete, or in parts, in small or large quantities, to suit purchasers.

Grain Mills—French Burr Stone and Cast Iron, from $5 to $250, for man, horse or steam power.

Corn and Cob Crushers—Of different sizes.

Straw Cutters—Of all the approved patterns and sizes, for hay, straw, corn, and corn stalks.

Corn Shellers—Several new kinds, together with all the old and most popular styles in use.

Garden and Fire Engine—Of recent invention, and the best article offered to the public.

Carts and Wagons—Of any style and size, furnished at the shortest notice.

Spring Wheat—Black Sea, and all other varieties of the best and most approved kinds Spring Seed Wheat.

Spring Rye and Barley—in any quantity.

Blue Grass Seed—Just received fresh from Kentucky, suitable for Lawns, and early and late pastures.

Clover Seed—White and Red, a superior article.

Timothy Seed—New and perfectly free from foul seed.

Garden Seeds—An extensive stock, selected with the utmost care, expressly for the American market.

Foreign Seeds—Of the best quality, and latest importation.

Grass Seeds—Ray, Lucerne and White Dutch Clover Seed, just imported.

Bird Seeds—Canary, Hemp, Rape and Millett.

Guano—Genuine Peruvian and Patagonian of the best quality.

Bone Dust—A prime article, in barrels or bags.

Plaster—Ground, in barrels

Poudrette—At the manufacturers' lowest prices.

JOHN MAYHER & Co

March 1—tf 197 Water Street, New-York

GREAT SALE OF SUPERIOR THOROUGH *Bred Short-horn Cattle.*

THE subscriber, having more stock than can be sustained on his farm, will offer at public auction about 30 head of his Improved Short-horn Cattle, consisting of Bulls, Cows, Heifers, and Heifer and Bull Calves, on Thursday, the 26th day of June next, at his farm, 2½ miles from this city.

It is known to breeders of improved stock in this country, and in Canada, that the proprietor of this herd, during the past twelve years, has, through the medium of importations from England, and selections from the best herds in this country, spared no expense to rear a Herd of Cattle, from which superior animals could safely be drawn, for improvement and cross upon other herds.

His importations have been derived from that eminent breeder, the late Thomas Bates, Esq., of Kirkleavington, Yorkshire, England, which herd it is well known, has recently been disposed of at public sale by his administrators, and dispersed in many hands, and can no longer be resorted to as a whole for improvement. The announcement of that sale created great interest, and all Short-horn breeders in England seemed emulous to secure one or more of the animals to mingle with the blood of their herds; and at the day of sale there was found assembled, the largest audience ever before witnessed on a similar occasion, numbering, it is said, from 4 to 5,000 persons; among them were the most eminent breeders in England, and several from other countries. Some of the animals bringing prices which seemed incredible to many.

In the herd now offered for sale, will be included the imported Bull Duke of Wellington, and the premium Bull Meteor. These are Bates Bulls, and their reputation as stock getters, is too well known to need any comments. I am, however, authorised to say by Lewis F. Allen, Esq., of Black Rock, one of the most prominent breeders in this country, and who has had ample means for forming a judgment, "that in no instance, to his knowledge, have these two bulls been bred to Short-horn cows of other herds previously imported into the United States, but what the produce were superior in general qualities to such herds." The most of the stock which is now offered for sale, has been bred from these two bulls; and the proprietor having a young bull more remotely connected with the portion of the herd which he retains, (say about 14 in number,) he can now spare these two valuable Bulls. There will be in the stock offered for sale, six young Bulls, from 8 months to about 2 years old, in addition to the two above named; and the remainder of the stock will be composed of Cows, (most of them possessing extraordinary milking qualities,) Heifers, and Heifer Calves.

It is believed that no Herd of Short-horns has ever been offered for sale in this country, exhibiting more of the valuable combinations of qualities which contribute to make up perfect animals. A Catalogue containing the pedigrees of these animals will be ready for delivery at an early period, in which the terms of sale will be stated. A credit will be given from 6 to 18 months. Gentlemen are invited to examine the herd at their convenience. GEO. VAIL.

Troy, N. Y., April 1, 1851—3t.

MORSE'S GREY.

THIS celebrated Horse was awarded the first premium of $20, at the great New-York State Fair in Sept., 1850, where he was exhibited with a large number of his colts, and was judged the best stock-horse for "all work" in this country. Said horse has trotted his mile in two minutes and forty-six seconds. One of his colts took the first premium at the State Fair at Saratoga Springs; he was owned by Mr. Milliman, of Washington county, N. Y.—and in all places where this stock has been exhibited, they have carried off the best premiums. He is a beautiful dapple grey, 15¼ hands high, strongly and finely proportioned.

This Horse is a descendant of the "Dilligence horses" in Italy, and brought from there by Napoleon Bonaparte, into France. His sire was brought to Quebec, and was then sold to a gentleman by the name of McNit, of Washington county, N. Y. His dam was of the Messenger breed.

Said Horse was raised by Mr. J. Mills of Argyle, Washington county, N. Y. We challenge any horse in this State to show as fine stock as said Horse. His colts are justly celebrated for speed, bottom, and good temper, are eagerly sought after in the market, and command prices varying from $150, to $500, and $1000.

Terms $10 the season. Insurance to be agreed upon. Said Horse will stand at the stable of James Rice, three miles north of the village of Lansingburgh. All communications addressed to I. T. Grant, P. M., Junction, Rensselaer county, N. Y., will receive prompt attention. CALVIN MORSE,

April 1, 1851—3t. I. T. GRANT.

The Mambrino Horse Washington.

THIS Celebrated Horse will stand the present season at North Ferrisburgh, Addison County, Vt. Washington was bred by John Thorn of Washington, Dutchess County, N. Y.—is a beautiful dark bay, over 16 hands, well proportioned, having great action, and possessing a great share of bone and sinew. Washington was got by Mambrino Paymaster, and Mambrino Paymaster by Mambrino, and Mambrino Paymaster's Dam by the imported Horse Messenger. Washington's dam by Mount Holley, grand-dam by True Britton, Mount Holley by the imported Horse Messenger, and dam by Bagazette. It will be readily perceived that Washington combines the best blood ever imported to this continent, and is adjudged to possess more good points and symmetry of proportion, than any other horse of his age, having taken the First Premium at the Dutchess County Agricultural Fair, in the fall of 1847, and the First Premium at the Addison County Fair last fall, on a field of eleven stallions, most of which were the stock of the original Black Hawk. All who are desirous of raising high-priced horses, are requested to call and examine the Horse and his stock. THOMAS R. NOONAN,

ANDREW HOLMES,

May 1—2t* Proprietors.

DOMESTIC ANIMALS AT AUCTION.

THE postponed yearly sale of FULL BRED SHORT-HORNS AND IMPROVED DAIRY STOCK, consisting of about fifty head, will come off at my farm on Tuesday, June 24th, 1851, at 12 o'clock, M. I shall dispose of all the improved Dairy Stock, which is composed of the finest Short-horn, with a slight cross of Amsterdam Dutch, which some writers say was part of the original ingredient which composed the improved Short-horns.

I am now breeding the Short-horns, Devons and Ayrshires, each separately and pure, which, owing to the limits of my farm, make it necessary to confine myself to those three breeds. By the awards of the State Agricultural Society, the American Institute, and my own County Society, (with the exception of last year, when I was not a competitor at either,) it will fully appear that I have been a very successful exhibitor. The cow which won the FIRST PRIZE as a milker, at the American Institute last year, was bred by me, and composed of the above alluded to Dairy Stock. Several of the Bulls got by Lamartine will be of the most appropriate age for efficient service the coming season. All Cows and Heifers old enough, will be warranted in calf at the day of sale, by my Imported Bull "Lord Eryholme," or my celebrated Bull "Lamartine."

I own two thorough bred Devon Bulls; one the celebrated old Major, the other, one and a half years old, imported by me from Devonshire. One of the above animals will be sold—which, I have not as yet determined.

A full Catalogue, with the pedigree of each animal, will be published in due time, with minute description of sale, &c.

I also have a number of Suffolk Sows, in pig to my imported Boar, most of the progeny of which will be old enough to dispose of on that day.

I also have about 20 South Down Ewes, most of which I imported from the flock of Jonas Webb, and now in lamb to my imported Buck "Babraham." Some of their Buck Lambs will be offered at auction on that day.

This sale will not only offer an opportunity to obtain Stock from my previous Herd, but will also enable persons to procure calves from my imported Bull, lambs from my imported Ram, and pigs from my imported Boar—all of which animals were recently selected by me in person, when in England.

The mode of warranting the Cows and Heifers in calf, is this: in case they prove not to be so, it shall be optional with the purchaser, on his *certificate of that fact*, either to receive from me $25, (say twenty-five dollars,) or to send the cow to my farm, and I will keep her the proper time (free of expense) to have her got in calf to either of my Bulls, which he shall choose. I will give $25 for any heifer calf from either of the Cows or Heifers sold at the sale, delivered on my farm, at two weeks old.

Stock purchased to be sent a distance, will be delivered on shipboard or railroad in the city of New-York, free of risk or expense to the purchaser.

Persons living at the south, in a climate to which it would not be well that stock should be transported, at that hot season of the year, may let such animals as they may purchase, remain with me until the proper season, and I will have them well taken care of, and charge only a reasonable price for their keep. One of my objects in breeding improved domestic animals, is to assist in distributing them throughout the Union, deeming it one, if not the most important feature to promote profit to the cultivator of the soil, and to benefit the consuming country at large.

All communications through the Post, please pre-pay, and I will pre-pay their answers, and also a Catalogue if required. Catalogues will be to be had at all the principal Agricultural Warehouses and offices of the principal Agricultural Journals, on and after the 1st day of June next. Persons wishing to view the stock at any time will find my superintendant, Mr. Wilkinson, to give them the desired information when I am not at home.

Dated this 4th day of March, 1851, at Mount Fordham, Westchester County, eight miles from the City of New-York, by Harlem Railroad. April 1.—3t L. G. MORRIS.

POSTSCRIPT.—I decline selling any Stock by private sale, so as to offer the public all the animals I have to part with, without having any previously selected from the Herd—and all animals offered will be positively sold.

Imported Consternation.

THIS Celebrated Thorough-bred Horse, will stand the present season, as heretofore, at the farm of the subscriber, two miles west of Syracuse.

In order that farmers of the most limited means, may be enabled to breed from this valuable Horse, the subscriber has consented to offer his services at the extraordinary low price of $7.00, payable in advance, in all cases—reserving the right to reject mares that are deemed unsuitable.

Mares provided with pasturage—well fenced, and well watered, at 37½ cents per week, but entirely at the risk of the owners.

Syracuse, May 1, 1851—3t. J. B. BURNET.

THE ORIGINAL BLACK-HAWK.

AT the earnest solicitation of many friends of this justly celebrated Morgan STALLION, the owner has been induced to let him remain in Vermont for one season more.

The superiority of this horse as a Stock-getter is becoming more and more highly appreciated, as his progeny are disseminated over the country.

For particulars in regard to pedigree and performances see large bills and previous volumes of the Cultivator.

Black Hawk will be kept for this season at the stable of the subscribers.

Terms $25 the season, payable in cash or satisfactory notes on demand, with interest.

Mares will be pastured at a reasonable price—accidents and escapes at the risk of the owners.

Bridport, Vt., March 1—4t. D. & D. E. HILL, Agents.

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ANALYTICAL LABORATORY,

Yale College, New-Haven, Connecticut.

JOHN P. NORTON, PROFESSOR OF SCIENTIFIC AGRICULTURE.

THIS Laboratory is now fully organised for instruction in all branches of analyses connected with the examination of soils, manures, minerals, ashes, animal and vegetable substances, &c. Full courses are given in each of these departments, and also in general Chemistry, both organic and inorganic.

Students can thus fit themselves to become instructors in the various branches of Chemistry, or to apply so much of that and kindred sciences as may be necessary to the practical pursuit of agriculture or manufacturing. The demand for teachers and Professors in the various branches of chemistry, especially Agricultural, is now great and increasing, so that this is now a fair field for those who have a taste for such pursuits.

A course of Lectures on Scientific Agriculture, by Professor Norton, commences in January of each year, and continues for two and a half months. This course is designed especially for the practical farmer, and has given great satisfaction to those who have attended it in previous years. It embraces a plain connected outline of the leading points in improved agriculture, treating in succession of the composition of the soil, the plant and the animal; of their connections with each other, and of all the improvements in cultivation, manuring, feeding and fattening, which have been adopted in the best agricultural regions. This course is made so plain and practical, that the farmer who attends it can understand the whole, and apply it in his own experience.

More can be learned by attendance upon such lectures, by reading in connection with them, and by associating with others who are also desirous of obtaining a better knowledge of their profession than in years away from such advantages. The young farmer learns to think for himself, to see that a practice is not necessarily right because it is old, to understand the reasons for all that he does, and with this increase of knowledge is better able to make farming profitable as well as interesting.

Board and lodging may be procured at from $2 to $3 per week, and the Ticket for the Lecture is $10.

In connection with the Lecture is a short Laboratory course, by means of which those who desire it, are taught to test soils, manures, marls, &c., in a simple way, and to make many elementary examinations of a highly useful character. The charge for this course is $25.

To those students who go through the full Laboratory course, the charge is about $200 per annum, and they can be admitted at any period of the year at a proportional charge.

For further information apply to Prof. JOHN P. NORTON, New-Haven, Conn. June 1, 1851—3t.

Emery's Horse-powers and Threshers.

EMERY & CO.'S Premium Railway Horse-powers and Threshers, which were awarded the first Premium at the late State Fair, in competition with many others, for sale at the State Agricultural Warehouse, No. 25 Cliff-street, New-York. G. H. BARR.
June 1—2t.

MANURES.

PERUVIAN GUANO at 2½ cents per lb.
Bone Dust, Sawings, Shavings, and Crushed, at $2 25 per bbl.
Bone Black, or Burnt Bones, at $3 per hogshead.
Bone Waste, or Bone Manure, at 1½ cents per lb.
Sugar House Scum, or Bullock's Blood, at $2,50 per hogshead.
Sulphate of Soda at 1 cent per lb; packages included at the above prices. For sale at the State Agricultural Warehouse
June 1—4t. G. H. BARR, No. 25 Cliff-street, New-York.

FISH FERTILIZER.

THE fertilizing qualities of *Fish*, when applied as a manure, are well known to many farmers as one of the most powerful manures—being thought nearly, if not *quite* equal, to the best *Peruvian Guano*.

By a new process, fish are now prepared so that they retain their fertilizing qualities, and are as easily applied as the common Guano. The result of repeated analyses by Prof. Norton is, that it is *equal* to the general qualities of Guano. It is now offered to the public, *Wholesale and Retail*, at the Albany Agricultural Warehouse and Seed Store, 369 and 371 Broadway, where the public are invited to call and examine. Price per ton, $35.
June 1. EMERY & CO.

DANA'S MUCK MANUAL.

(*New Edition.*)

THE subscriber has in press and will publish without delay, a new, revised, and greatly enlarged edition of "The Farmer's Muck Manual," by Dr. S. L. Dana. The work has been almost entirely re-written, much new and valuable matter added, and brought up to the present advanced state of agricultural science. It will be printed from large clear type, on good paper.

Orders are respectfully solicited. Any one sending the publisher 75 cts. will receive by mail a copy, *post-paid*. JAMES B. WALKER,
June 1—1t. Lowell, Mass.

Imported Suffolk, Essex, and Middlesex Hogs.

THE subscriber has now on hand and for sale, some pure Blooded Suffolk, Essex, and Middlesex Swine, from the importation of the late William Stickney of Boston. All orders and selections trusted to Isaac Stickney, administrator of the estate of William Stickney, will be promptly attended to, and selections made with great care.
ISAAC STICKNEY, Chatham-street, Boston.
Boston, June 1, 1851—1t.

Berkshire Pigs for Sale.

I OFFER for sale Three pure blooded Berkshire Boar Pigs, 8 weeks old, from my imported Sow and Boar, (from the stock of G. Hayter, Esq., M. P., of Talscot Farm, Berks, England,) and noticed at page 43 of the American Agriculturist.

Also a few half breeds from a very fine large Sow, which I can highly recommend, as something superior.
C. W. SIMMONS, Yonkers.
June 1, 1851—1t. Direct (post-paid) 176½ Bowery, New-York.

New York Agricultural Warehouse and Seed Store.

A. B. ALLEN & CO., 189 and 191 Water street, N. Y., offer for sale the largest and most complete assortment of the latest and best improved Agricultural and Horticultural Implements, and Field and Garden Seeds in the United States, embracing every Implement, Machine or Seed desirable for the Farmer, Planter or Gardener. We would call particular attention to our large variety of most approved and very superior Plows, Harrows, Seed Sowers, Grain Drills, Corn Planters, Cultivators, Corn Shellers, Straw Cutters, Hay and Cotton Presses, Grain Mills, Garden and Fire Engines, Water Rams, Endless Chain Suction and Force Pumps, Horse Powers, Threshers, Saw Machines, Garden and Field Rollers, Sausage Cutters and Stuffers, Garden Shears, Knives, Saws, &c., Grain Cradles, Scythes, Snaths, Fan Mills, Forks, &c. &c. Wagons, Carts, Mills and Machinery of all kinds, either on hand or furnished at shortest notice. Our extensive manufactory gives us every advantage for making all articles to order and in the best manner possible.

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UNRIVALLED Horse Powers of all kinds, guaranteed the best in the United States.

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3. Eddy's circular wrought iron large Cog Wheels, for one to six horses. A new and favorite Power.

4. Trimble's iron sweep Power for one to four horses. Warren's ditto. A. B. ALLEN & CO.,
March 1—tf. 189 & 191 Water street, New York.

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